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## The Society

The **ISHBH** is a not-for-profit organization established to bring together individuals for whom the history and bibliography of herpetology is appealing, to promote the knowledge of related topics among members and the general public, and to promote research. Membership is open to anyone who shares the aims of the Society.

## Membership

Regular membership for currently three years is US $45, Sponsoring US $75, Institutions US $75, and Benefactor US $150. The present period 2013 to 2015 starts with *Bibliotheca Herpetologica* volume 11. Life Membership is US $450 starting from 2013, but will also include volumes 9 and 10. The fee includes a subscription for two volumes of the Society's journal *Bibliotheca Herpetologica*. A membership application form that includes the possibility to order back issues can be found on our website. Payment can be made by personal check or money order in USD drawn on a US bank sent to the Secretary-Treasurer or the Chairperson. Payment can also be made by transfer in euro to Plusgirot, Sweden, IBAN SE83 9500 0099 6042 0455 1206, BIC NDEASESS. Payment by credit card can be made on the website ZenScientist, www.zenscientist.com. This website is run by Breck Bartholomew, Utah, USA. It can be used also for applying for membership to many other national and international herpetologicsl societies. ZenScientist.com is designed to promote communication and collaboration within the herpetological community. Try it!

Members are encouraged to contribute with articles, essays, news of meetings, hints on antiquarian trade, book reviews and other issues associated with herpetology. The Society organizes seminars, visits to libraries, museums, etc. in connection with herpetological meetings with international participation. The Society works to facilitate informal contacts among members so that the members can meet, offer support in knowledge and transact exchanges of literature.

Correspondence to the Society shall be addressed directly to a Committee member or officer, either by post or email.

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Prennegatan 23B, SE-223 53 Lund, Sweden.
richard.wahlgren@live.se

*Vice-chairperson*: Ronald Javitch
PO Box 67 - Station H, Montréal, QC
H3G 2KS, Canada. biblijav@total.net

*Secretary-Treasurer*:
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Division of Vertebrate Zoology
Yale Peabody Museum of Natural History
Box 208118
New Haven, CT 06520, USA.
gregory.watkins-colwell@yale.edu

*Meeting Organizer*: Aaron Bauer
Department of Biology
Villanova University, 800 Lancaster Ave.
Villanova, PA 19085-1699, USA.
aaron.bauer@villanova.edu

*Editor*: Christopher J. Bell
Dept. of Geological Sciences
University of Texas
1 University Station C1100
Austin, TX 78712-0254, USA.
cjbell@mail.utexas.edu

## Other officers

*Managing Editor and Webmaster*:
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PO Box 781
Morehead City, NC 28557, USA.
rrtramon@t-ad.net

## Instructions for Authors

Authors submitting a manuscript do so on the understanding that the work has not been published before and is not being considered for publication elsewhere. Manuscripts are peer reviewed. The language of *Bibliotheca Herpetologica* is English. See the ISHBH website for more details: www.t-ad.net/ishbh/author.html

# Society News

## Present membership period expanded to include 2015

The present membership period was initially set to be 2013 and 2014. In this period the Society shall publish volume 11 and 12 of *Bibliotheca Herpetologica*. Volume 10(2) was published in February 1014, but it was actually assigned to the membership period that ended in 2012. The delay in the publication records has obliged the Executive Committee to expand the present period also to include the year 2015; that is the present membership period is 2013-2015 without further dues from the members. In 2015 volume 12 of *Bibliotheca Herpetologica* shall be published.

## Markus Lambertz new Editor for *Bibliotheca Herpetologica*

With this editorial I would like to briefly introduce myself as the new editor of *BH*. While driving to the 2014 annual meeting of our German sister organization, the *Arbeitsgemeinschaft Literatur und Geschichte der Herpetologie und Terrarienkunde*, Professor Aaron Bauer asked me what I would think about becoming the new editor of *BH*. I was a bit surprised at that moment, but I immediately was highly interested as this small and specialized journal certainly is amongst my favorite periodicals. I joined the *ISHBH* in 2008 and, to be honest, the subscription to *BH* actually was my primary motivation to do so. During the society's ordinary meeting in August 2014 – despite my physical absence – I now officially became elected as editor, which I hereby gratefully accept.

I was trained in biology at the *Rheinische Friedrich-Wilhelms-Universität Bonn* in Germany and my primary research interests focus on the functional and evolutionary morphology of vertebrates. Amphibians and reptiles are my preferred subjects for that and I have a special inclination for studies on their respiratory system. Besides that, however, the history of both morphology and herpetology became sort of a hobby of mine that with this new obligation eventually even becomes a professional duty. I hope that I will serve the journal and the society well and I would furthermore like to thank my direct predecessor, Professor Christopher Bell, for his excellent service as editor, which up to the present issue always guaranteed an exciting journal. Bonn, Germany, August 2014.

**Markus Lambertz**
Institut für Zoologie, Rheinische Friedrich-Wilhelms-Universität Bonn, Poppelsdorfer Schloss, DE-53115 Bonn, Germany.
lambertz@uni-bonn.de

## Next Society Meeting: July – August, 2015

The University of Kansas, in Lawrence, Kansas, USA, will be the site for the annual meeting of the Society for the Study of Amphibians and Reptiles (SSAR) from July 29 to August 3, 2015. The meeting is co-sponsored by Partners in Amphibian and Reptile Conservation (PARC) together with the herpetological societies of Kansas, Missouri, and Arkansas, the Center for North American Herpetology (CNAH), and the International Society for the History and Bibliography of Herpetology (ISHBH). This was the place where the first thoughts that led to the establishment of our society were shaped in 1996. It is our plan to celebrate this event by arranging a half or full day symposium on herpetological history and bibliography during the meeting. In addition, there will be a display of rare herpetological books at the Spencer Library on the campus of the University and, on the day following the conclusion of the official meeting, the ISHBH will be having a full day program including roundtable discussions on topics of common interest and additional library visits.

## Make an oral presentation at the 2015 symposium on history and bibliography of herpetology!

The symposium arranged by ISHBH will include oral presentations relating in a wide

definition to the history and bibliography of herpetology. Depending on numbers of members registering for presentations the length should be either 15 or 30 minutes. Inquire with Aaron Bauer or Richard Wahlgren.

Please plan already now for attending the herpetological meeting in the Lawrence, Kansas, USA on July 29 to August 3 (and just ISHBH on Tuesday, August 4), 2015.

## The Society Meeting 2014

The 2014 Business Meeting of the Society was held on August 3 in Chattanooga, Tennessee, USA, in conjunction with 2014 Joint Meeting of Ichthyologists and Herpetologists. The meeting took place with the traditional shared luncheon in the Oak room at the elegant Public House and was this year attended by nine members. Election of the Executive Committee for the biennial period 2014 and 2015 (until the Business meeting in 2016) was on the agenda. The Editor, Dr. Chris J. Bell had declined to stand for another period, which was consented. Chris Bell has been the editor since 2008 and he has diligently supervised the production of *Bibliotheca Herpetologica* volume nine to eleven. His endeavors were acknowledged with acclaim by the attending members. Nominated as the new Editor was Dipl. Biol. Markus Lambertz, Institut für Zoologie, Rheinische Friedrich-Wilhelms-Universität Bonn, Germany, and he was unanimously elected.

There were no new nominees for the other positions and all of the current officers were re-elected.

**Attendees of the 2014 ISHBH meeting.** Upper row left to right: Aaron M. Bauer, Ronald A. Javitch, Gordon M. Burghardt, Luis Ceriaco. Lower row left to right: Roy W. McDiarmid, Victor Hutchison, Richard Wahlgren, Gregory J. Watkins-Colwell, Joseph C. Mitchell.

## ABOUT THE COVER

Arnout Vosmaer (1720–1799) was one of the most acquisitive collectors of natural history specimens in the Netherlands in the middle third of the 18th century. Although known primarily as a collector, Vosmaer also contributed to the scientific literature. His main original contribution to zoological literature was a series of pamphlets that described and illustrated animals in a natural history and art collection (Stadhouder's cabinet and menagerie) for which he was the director. These were posthumously combined in book form with the half title *Regnum Animale*. It was published between 1766 and 1787 and comprised 31 installments with 33 color plates. Three reptile sections were treated in the work. Two additional accounts with one plate each, both dealing with birds, were added in 1804 when the earlier works were reprinted and published in book form. The three sections on reptiles include one on a rattlesnake, *Crotalus durissus*, from Surinam. All three herpetological plates were based on the work of Gerrit van den Heuvel (c. 1725–1809). The size of the original rattlesnake plate is 190 by 149 mm. Read more in the fascinating article by Aaron M. Bauer and Christopher J. Bell starting on the next page.

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# Arnout Vosmaer and the Herpetological Parts of the *Regnum animale*

Aaron M. Bauer[1] and Christopher J. Bell[2]

[1]Department of Biology, Villanova University, 800 Lancaster Avenue, Villanova, PA 19085. aaron.bauer@villanova.edu.
[2]Jackson School of Geosciences, The University of Texas at Austin, Austin, TX 78712

Arnout Vosmaer (1720–1799) was one of the most acquisitive collectors of natural history specimens in the Netherlands in the middle third of the 18th century, a period during which hundreds of natural history cabinets were established and maintained (Loisel 1912; Engel 1939, 1986). Vosmaer was born in Rotterdam, the son of a wine merchant. Following the death of his father he pursued a number of business ventures and also began to build a natural history cabinet. After the death of his mother in 1749, he gave up business pursuits and moved to The Hague in 1751 to concentrate on the study of natural history and the continued growth of his cabinet, although he had to take a position as a clerk working for the Treasury (Pieters and Rookmaaker 1994). The following year Vosmaer enlarged his collection through the purchase of numerous lots of specimens, including herpetological material, at the sale of the cabinet of the Amsterdam apothecary Albertus Seba (1665–1736) (Engel 1937, 1961; Lunsingh Scheurleer 1967; Boeseman 1970). Seba previously sold his first collection to Peter the Great in 1716 (Driessen-van het Reve 2006) and then rebuilt an even grander collection which attracted visitors from across Europe, including Linnaeus (Engel 1937; Adler 1989). Portions of Seba's collection were made known to the world at large through the publication of the first two volumes of his *Thesaurus* (Seba 1734, 1735), both of which contain substantial herpetological sections. However, it became necessary for the heirs of Seba to sell the collection to fund the completion of the remaining volumes. In 1752 the collection went for auction (Anonymous 1752), resulting in its dispersion across Europe (Boeseman 1970; Juriev 1981; Daszkiewicz and Bauer 2006) and eventually the loss of most of the collection, chiefly through a lack of documentation.

In 1756 Princess Anne of Hanover (1709–1759), the widow of Willem IV, Prince of Orange-Nassau (1711–1751) — also known as the Stadhouder, and regent for her son Willem V (1748–1806), then only eight years old, established a natural history and art collection (Natuur- en Kunstcabinetten des Stadhouder) and appointed Vosmaer as its director. Only weeks later, after visiting Vosmaer's enormous private collection Anne purchased it for 8000 florins, immediately elevating the Stadhouder's collection to one of the finest in Europe. Following Princess Anne's death in 1759, Vosmaer remained as director and in 1771 Willem V also appointed him to the position of director of the Stadhouder's menagerie, which had been founded by Willem IV at his property, Het Kleine Loo, at Voorburg, one kilometer from The Hague (Pieters and Rookmaaker 1994). Until 1786, when Willem sold Het Kleine Loo and moved to his family's ancestral estate at Apeldoorn, Vosmaer oversaw the care of a diversity of exotic animals purchased or received as gifts, chiefly from Dutch colonies (Surinam, Dutch East Indies, South Africa) and trading posts (Japan, Ceylon). These included such novelties as elephants, orangutans, and giraffes (Pieters 1980, 1994). Willem moved his menagerie with him to Het Loo (or Oude

Loo) at Apeldoorn and the construction of the new zoo was overseen by Vosmaer (Evers 1914), who then returned to the cabinet at The Hague. Vosmaer added to the cabinet through purchases and exchanges and also incorporated animals from the menagerie, many of which eventually died. The Stadhouder's cabinet was open to the public and Vosmaer would lead tours through it himself. It was an important collection and visitors included naturalists like Thomas Pennant (1726–1798), Robert Jacob Gordon (1743–1795) and Peter Simon Pallas (1741–1811), who was a regular visitor during his residence at The Hague (1763–1767). Pallas even used the collections as the basis for numerous descriptions of new species in his works (Pieters 1980). In 1766 the cabinet and other collections of the Stadhouder outgrew their quarters and were moved to another location in The Hague. In 1795 the Low Countries were invaded by Napoleon's troops, Willem V fled to exile in England, and a client government was established. As elsewhere during the Napoleonic period, both state and private collections of art and natural history items were systematically targeted for confiscation and transport to Paris (Daget and Saldanha 1989; Daszkiewicz and Bauer 2003). Cabinets were under the jurisdiction of the Commission des Arts et des Sciences under the direction of professors of the recently founded (1793) Muséum d'Histoire Naturelle. The botanist André Thouin (1747–1824) and the geologist Barthélémy Faujas de Saint-Fond (1741–1819) oversaw the removal of much of the Stadhouder collection (Boyer 1971; Lemire 1994; Bauchot and Daget 1996), although it is believed that some of the most valuable specimens were retained, perhaps through the actions of Vosmaer who concealed them (Boeseman 1970; Pieters and Rookmaaker 1994). Many specimens from Seba's collection are believed to have escaped confiscation, eventually to resurface in auctions of the collection of Professor Theodoor Gerard Van Lidth de Jeude (1788–1863) of Utrecht University in 1858 and 1866 (Thomas 1892; Boeseman 1970; Pieters 1980). However, at least some of the material was certainly removed. Pennant for example, noted the presence in 1756 of Seba's basilisk and this specimen is known to have been taken to Paris and is still extant in the collection today (Thireau et al. 1998). Also taken were the original printing plates for Seba's *Thesaurus*, which were later used to produce the "Planches de Seba" (1827–1831) (Férussac 1826, Holthuis 1969, Bauer 2002). Willem V's menagerie at Het Loo was also appropriated and the occupants, including two Asian elephants, were shipped to Paris, where they eventually served as the basis for scholarly works by Georges Cuvier and others (Evers 1914; Lemire 1994).

Vosmaer died in The Hague in January of 1799. Although portions of the collection were eventually returned as part of reparations after the Napoleonic Wars, most material sent from Paris consisted of duplicate material rather than the specimens originally taken (Pieters 1980), although some of the more noteworthy specimens from the Stadhouder's cabinet also were returned and eventually incorporated in the Rijksmuseum van Natuurlijke Historie (now Naturalis) at its founding (Gijzen 1938).

Although known primarily as a collector, Vosmaer also contributed to the scientific literature of the period. In 1754 he edited and provided a preface to the second edition of Louis Renard's natural history of marine fishes and crustaceans of the Dutch East Indies (Pietsch 1993). After the purchase of portions of Seba's collection he edited the remaining two volumes of Seba's *Thesaurus* (1759, 1765, neither with herpetological content) with the aid of Pallas, Martinus Houttuyn (1720–1798), and others (Holthuis 1969; Pieters and Rookmaaker 1994). Vosmaer also catalogued for sale the cabinet of Pieter Bout (1693–1778), which in turn incorporated the renowned collection of Levinus Vincent (1658–1727) (Pieters and Rookmaaker 1994). Vosmaer's main original contribution to zoological literature was a series of pamphlets

that described and illustrated animals in the Stadhouder's cabinet and menagerie. These were posthumously combined in book form with the halftitle *Regnum Animale*. Bibliographic details of this complicated work were discussed by Pieters (1980) and Rookmaaker (1989).

*Regnum Animale* comprised 31 installments with 33 color plates (two plates each for the orangutan and giraffe accounts) published between 1766 and 1787. Two additional accounts with one plate each, both dealing with birds, were added in 1804 (Pieters 1980) when the earlier works were reprinted and published in book form. The preface and title pages were considered as a 34th part of the work and were, like the others, available separately (Pieters 1980). Parts published from 1766 to 1778 were published in Amsterdam by P. Meijer and those from 1783 to 1787 by the Heirs of P. Meijer and G. Warnars. The accounts were published in both Dutch and French versions, often, but not always, in the same year. Likewise, the book form also was produced in two different language versions. The Dutch was issued in book form in 1804 and the French in 1805, although the title page is dated 1804 (Pieters 1980). Both were published in Amsterdam by J.B. Elwe. The animals figured came largely from the Dutch colonies of Surinam, the Dutch East Indies (now Indonesia), and South Africa, but other parts of the world also were represented.

Twenty mammal, ten bird, and three reptile sections were treated in the work. Although only three of the accounts dealt with herpetological subjects, those three are quite interesting in that they reveal Vosmaer's critical thinking about purported characteristics of the animals and specimens in his charge. The works did not use Linnaean names, but rather gave descriptions of the animals and their behaviors. The three sections on reptiles include one (part 5 of the work as a whole) on a rattlesnake from Surinam (French edition 1767, Dutch 1768), another (part 23) on reduced-limbed African lizards (both editions published 1774), and one (part 24) on several species of seasnakes (both editions published 1774).

In his publication on the "Surinaamsche ratelslang" Vosmaer reviewed the comments of a number of earlier authors who referred to the rattlesnake. He rightly concluded that rattlesnakes were restricted to the New World, countering authorities such as Seba, who thought they also occurred in Asia. Vosmaer considered Linnaeus's method of scale counting to differentiate species to be unreliable. He correctly interpreted some aspects of biology, recognizing that snakes could hear despite the absence of a tympanum, but seemed to accept their power to spellbind both animal prey and humans. The origin of the particular snake figured is precise, the Plantation "the Vier Kinderen" in Para, Surinam, and the animal figured is indeed the sole species of rattlesnake occurring in Surinam, *Crotalus durissus*. With 22 pages of text, the account is exceeded in length only by those on the orangutan (23 pp.) and the giraffe (44 pp.), each with two, rather than one plate. Although the majority of the plates in the *Regnum Animale* were based on original paintings by Aart (or Aert) Schouman (1710–1792) (Pieters 1980; Grijzenhout 1994), all three herpetological plates were based on the work of Gerrit van den Heuvel (c. 1725–1809). Van den Heuvel's original pen and pencil illustration of the rattlesnake was reproduced in black and white by Pieters (1994). The engravings of at least the later plates were executed by Simon Fokke (1712–1784).

Unlike the rattlesnake, which Vosmaer kept alive, briefly, in the menagerie, his other herpetological sections were based on material in the cabinet of natural history. The two Cape lizards depicted were part of the Stadhouder collection, the first — the "Langstaartige, ruw-geschubde Slang-hagedis" via Vosmaer's own collection. He correctly concluded that it was terrestrial rather than aquatic (as incorrectly reported

by Seba), as for example, the reduced limbed *Lygosoma quadrupes* had been interpreted by Bloch (1776) (Bauer and Günther 2006). Seba was correct however in believing that the lizard came from the Cape of Good Hope; it is clearly assignable to *Chamaesaura anguina* as recognized by Schneider (1801), Daudin (1802), Merrem (1820), Cuvier (1816 [1817]), Gray (1830–1831), Duméril and Bibron (1839) and other early authors. The second species, the "Africaansche glad-geschubde Worm-hagedis" was stated to have come from the Cape. Vosmaer considered that it lived in "watery places." Despite its diminutive limbs, all feet bear five digits. The identity of the species is unclear. The animal illustrated appears to have small limbs and a thick tail, and is thus different from the only five-toed, reduced-limbed lizard actually occurring in the area around the part of the Cape readily accessible to the Dutch, *Tetradactylus seps*. In proportion and relative limb size it more closely resembles *Scelotes* spp., although the only four-limbed species in the region is *Scelotes caffer*, with only three toes per foot. Schneider (1801), Merrem (1820) and Duméril and Bibron (1839) among others placed it in the synonymy of the species now recognized as *Lygosoma quadrupes* (Linnaeus, 1766), an inhabitant of southeast Asia.

The sea snakes discussed by Vosmaer also refer to specimens from the cabinet, rather than the menagerie. The "Bruinrug Platstaart Slang" of Mexico is clearly *Pelamis platura* (now *Hydrophis platurus* following Sanders et al. 2012) and the specimen was a juvenile based on the statement that it was reproduced life-sized in the plate. The other specimen, the "Geringde Platstaart Slang" came from an unknown locality but was believed by Vosmaer to come from the East Indies, as broadly construed. He contrasts this specimen with *Laticauda laticaudata*, remarking on a fundamental difference between sea kraits and true sea snakes with respect to the enlarged ventral scutes. The similarity of most sea snakes makes it more difficult to determine which species Vosmaer figured, however, Duméril et al. (1854) placed it in the synonymy of *Hydrophis nigrocinctus* (Daudin, 1803). Although this species is part of an historically confusing group of sea snakes that have undergone substantial revision (McDowell 1972; Kharin 1989; Rasmussen et al. 2011; Sanders et al. 2012), both its color pattern and presumed provenance are fully compatible with this identification.

The herpetological images from Vosmaer's work previously were reproduced at least once. The plate depicting the seasnakes was reproduced recently by Papavero and dos Santos (2012:20). In addition to their representation on the plates in their respective installments, the rattlesnake and brown-backed sea snake are also part of the design of the engraved *Regnum Animale* halftitle page, which was reproduced by Pieters (1980:544, black and white) and Grijzenhout (1994:62, color). Shaw (1802: pl. 90) published both colored and black-and-white versions of the rattlesnake image, but reversed and without the background elements, with credit to Vosmaer. We here provide a facsimile (albeit at reduced size; the maximum dimensions of the original is approximately 13 x 20 cm for the text block and 16 x 20 cm for the plates) of the Dutch version of each of the herpetological installments of *Regnum Animale.*

The copies of the two snake installments reprinted here are from a copy of *Regnum Animale* at The University of Texas which is openly available online through the University Digital Repository http://repositories.lib.utexas.edu via the handle http://hdl.handle.net/2152/14336; (the handle leads directly to the record for the scans of the volume, from which individual scans may be opened). This copy lacks the lizard installment and the facsimile provided here is from a copy in the personal library of the first author. Additional digital versions of the *Regnum Animale* are available through several sources on the web including Biodiversity Heritage Library (www.biodiversitylibrary.org; complete color copy of the Dutch book version from the

Smithsonian Libraries) and GoogleBooks (http://books.google.com; complete color copy of the Dutch book version scanned from the Universiteitsbibliotheek Gent; color copy of the separate of French rattlesnake account and black and white scans of the French separates of the other two reptile installments, all from the Bayerische Staatsbibliothek).

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## NOTES ON THE TRANSLATION

We made every effort to ensure the accuracy of the translation, but assume all responsibility for any errors. In some cases, stylistic idiosyncrasies and the syntactical differences between the original Dutch and modern English made it difficult to provide simultaneously both a faithful communication of Vosmaer's original intent and a comprehensible translation. Our editorial interpretations are placed within [brackets] in the text.

We retained Vosmaer's use of foot (voet) and duim for measurements. Measurements in the Dutch Republic were not standardized until after 1790, but Vosmaer notes that he used the Rhineland system (p. 12 of the rattlesnake installment). The Rhineland voet is approximately equal to 31.4 cm; the Rhineland duim is approximately equal to 2.62 cm (Verhoef, 1983).

Vosmaer mentioned many prominent naturalists from the 17th and 18th centuries in his text. In many cases he made reference to their published work, and used footnotes to provide partial citations to those publications. In order to simplify the flow of the text for the translation, we moved his footnotes to the end of each account. The text and footnotes (endnotes in our translation) were linked with italicized lower-case letters in the original, and we retained that system for the translation.

In an effort to facilitate access to the literature he cited, we provide complete citations to all the works mentioned in the three installments. Vosmaer introduced minor inconsistencies in the spelling of some proper names across these three parts (e.g., Linnéus vs. Linné vs. Linnée; Houttuin vs. Houttuyn; De Lassaraz vs. de Lassaraz). We retained his original spellings in the text of the translation, but used the common modern spelling for literature citations. Specific differences include our use of Aldrovandi (for his Aldrovandus), Imperato (Imperatus), Kalm (Calm), Lawson (Lausons), Linnaeus (Linnée, etc.), Osbeck (Osbeek), Ray (Raj), and Schouten (Schoutten).

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Osbeck, P. 1765. Reise nach Ostindien und China. J.C. Koppe, Rostock. (6), xxiv, (2), 552, (26) pp., 13 pls.

Piso W [Pisonis G] (1658) De Indiæ Utriusque re Naturali et Medica Libri Quatuordecim. Quorum Contenta Pagina Sequens Exhibet. Apud Ludovicum et Danielem Elzeverios [Daniel and Louis Elzevier], Amstelædami [Amsterdam], [22], 327, [5], 39, 226 pp.

Pistorius, T. 1763. Korte en zakelyke beschryvinge van de colonie van Zuriname. Waar in te vinden is een omstandig berigt van de gelegenheid deezer volkplantinge; derzelver rivieren, kreeken, forten, bergen, plantagien, vater-werken en houtzageryen; opgemaakt volgens de nieuwste land-kaarten. Mitsgaders een kort verhaal van deszelfs inwoonderen, inzonderheid de leevensmanier der slaven, hunne huishoudinge, godsdienst, huwelyken; zeldzaame gewoonte by het opvoeden hunner kinderen, en de wonderbaare begravinge van haare dooden. Als mede eene beschryvinge van de vrugt- en andere boomen; aardgewassen, wilde en tamme land- en water-dieren; boom-, landen water-vogelen, visschen, slangen, venynige en ander ongedierten. Theodorus Crajenschot, Amsterdam. [8], 160 pp. 4 pls.

Prevost, A. F. [Abbé]. 1747. Histoire générale des voyages, ou, Nouvelle collection de toutes les relations de voyages par mer et par terre, qui ont été publiées jusq'à présent dans les différentes langues de toutes les nations connues: contenant ce qu'il y a de plus remarquable, de plus utile, & de mieux avéré, dans les pays où les voyageurs ont pénétré, touchant leur situation, leur étendue, leur limites, leurs divisions, leur climat, leur terroir, leurs productions, leurs lacs, leurs rivières, leurs montagnes, leurs mines, leurs citez & leurs principals villes, leurs ports, leurs rades, leurs edifices, &c. Avec les moeurs et les usages des habitans, leur religion, leur gouvernement, leurs arts et leurs sciences, leur commerce et leurs manufactures; pour former un systême complet d'histoire et de géographie moderne, qui représentera l'état actuel de toutes les nations: enrichie de cartes géographiques

nouvellement composées sur les observations les plus authentiques, de plans et de perspectives, de figures d'animaux, de végétaux, habits, antiquités, &c. Nouvelle édition. Tome second. Pierre de Hondt, La Haye. [viii], 454, [2] pp., 18 pls.

Ray, J. 1693. Synopsis Methodica Animalium Quadrupedum et Serpenti Generis. Vulgarium Notas Characteristicas, Rariorum Descriptiones Integras Exhibens: cum Historiis & Observationibus Anatomicis perquam Curiosis. Praemittuntar nonnulla De Animalium in Genere, Sensu, Generatione, Divisione, &c. S. Smith & B. Walford, Londini [London]. portrait, [16] + 336 + [8] pp.

Schouten, W. 1676. Wouter Schoutens Oost-Indische voyagie: vervattende veel voorname voorvallen en ongemeene vreemde geschiedenissen, bloedige zee- en landt-gevechten tegen de Portugeesen en Makassaren; belegering, bestorming, en verovering van veel voorname steden en kasteelen. Mitsgaders een curieuse beschrijving der voornaemste landen, eylanden, koninckrijcken en steden in Oost-Indien; haer wetten, zeden, godtsdiensten, costuymen, drachten, dieren, vruchten en planten: als oock sijn seer gevaerlijcke wederom-reyse naer ‚t vaderlandt, daer in een bysondere harde ontmoetinge met d'Engelsche oorloghs-vloot, soo in Bergen Noorwegen, als in de Noord-zee. Verçiert met seer konstige koopere platen, soo van de voornaemste steden, als andere aenmerckelijcke saken; door den schrijver in Indien self geteeckent. Jacob Moers & Johannes van Someren. [xii], 253, [23], 2 pls.

Seba, A. 1734. Locupletissimi Rerum Naturalium Thesauri Accurata Descriptio, et Iconibus Artificiosissimis Expressio, per Universam Physices Historiam. Opus, cui, in hoc Rerum Genere, Nullum par Exstitit. Ex Toto Terrarum Orbe Collegit, Digessit, Descripsit, et Depingendum Curavit Albertus Seba, Etzela Oostfrisius, Academiæ Caesareæ Leopoldino Carolinæ Naturæ Curiosorum Collega Xenocrates dictus; Societatis Regiæ Anglicanæ, et Instituti Bononiensis, sodalis. Tomus I. 1735. Janssonio-Waesbergios, & J. Wetstenium, & Gul. Smith [Jansson-Waesberg, J. Wetsten & William Smith], Amstelaedami [Amsterdam]. [33] + 178 pp., 111 pls.

Seba, A. 1735. Locupletissimi Rerum Naturalium Thesauri Accurata Descriptio, et Iconibus Artificiosissimis Expressio, per Universam Physices Historiam. Opus, cui, in hoc Rerum Genere, Nullum par Exstitit. Ex Toto Terrarum Orbe Collegit, Digessit, Descripsit, et Depingendum Curavit Albertus Seba, Etzela Oostfrisius, Academiæ Caesareæ Leopoldino Carolinæ Naturæ Curiosorum Collega Xenocrates dictus; Societatis Regiæ Anglicanæ, et Instituti Bononiensis, sodalis. Tomus II. 1735. Janssonio-Waesbergios, & J. Wetstenium, & Gul. Smith [Jansson-Waesberg, J. Wetsten & William Smith], Amstelaedami [Amsterdam]. [34] + 154 pp., 114 pls.

Tyson, E. 1683. Vipera Caudi-Sona Americana, Or the Anatomy of a Rattle-Snake, Dissected at the Repository of the Royal Society in January 1682/3. Philosophical Transactions of the Royal Society 13 (no. 144): 25–58 [last page incorrectly numbered as 46], 2 pls.

Tyson, E. 1684. Viperæ caudisonæ anatomia, descripta ab Eduardo Tyson, Medico Londinensi & Scietatis Regæ Socio. Excerpta ex Transactionibus Philosophicis Anglicis mensis Febr. 1682/3. no. 144. Acta Eruditorum Anno MDCLXXXIV:138–149, pl. V.

Valentyn, F. 1724–1726. Oud en nieuw Oost-Indiën, vervattende een naaukeurige en uitvoerige verhandelinge van Nederlands mogentheyd in die gewesten, benevens eene wydlustige beschryvinge der Moluccos, Amboina, Banda, Timor, en Solor, Java en alle de eylanden onder dezelve landbestieringen behoorende: het Nederlands comptoir op Suratte, en de levens der groote Mogols; als ook een keurlyke verhandeling van 't wezentlykste, dat men behoort te weten van Choromandel, Pegu, Arracan, Bengale, Mocha, Persien, Malacca, Sumatra, Ceylon, Malabar, Celebes of Macassar, China, Japan, Tayouan of Formosa, Tonkin, Cambodia, Siam, Borneo, Bali, Kaap der Goede Hoop en van Mauritius: te zamen dus behelzende niet alleen eene zeer nette Beschryving van alles, wat Nederlands Oost-Indien betreft, maar ook 't voornaamste dat eenigzins tot eenige andere Europeers, in die Gewesten, betrekking heeftorgevallen, beschreven, en met veele zeer nette daar toe vereyschte Kaarten opgeheldert. 5 Volumes. Joannes van Braam, Dordrecht and Gerard onder de Linden, Amsterdam. Vol. 1 (1724): [32], 428, [28] pp., 16 pls.; Vol. 2 (1724): [2], 351, [1], 282, 48, [8] pp., 24 pls., Vol. 3 (1726): [6], 586, 259, [1], 96, [14], 109 pls.; Vol. 4 (1726): [2], 491, [3], 311, [1], 166, [22] pp., 61 pls.; Vol. 5 (1726): [2], 360, 462, [2], 166, 160, [35] pp., 34 pls.

Watson, F. 1761. De Dierlyke Wereld ter Beschouwinge Opengezet. Uit het Engelsch van den heere F. Watson, met Merklyke Verbeteringen en Aantekeningen Uitgegeeven door Cornelius Nozeman. P. Meijer, Amsteldam. XIV, [2], 292, [8] pp., 33 pls.

# Description of a Beautifully marked Surinam Rattlesnake; Having Two Long Black Stripes Across the Head and the Neck as well as Experiments Done in The Hague on the Deadly Effects of the Poisonous Bite of a Live Transported Snake of the Species; Located, with Several Others, in the Museum of his Most Illustrious Highness, The Prince of Orange and Nassau, Hereditary Stadhouder, Hereditary Governor, Hereditary Captain General and Admiral of the United Netherlands, etc. etc. etc.

**Described and published by**

**A. Vosmaer,**

**Director of the Royal Nature and Art Cabinets, Member of the Imperial Academy, and Correspondent of the Royal Academy of Sciences in Paris.**

**In Amsterdam,**

**By Pieter Meijer,**

**MDCCLXVIII [1768].**

**[p. 2 is blank]**

**[p. 3]**

## Natural History and New Experiments, Done in The Hague on the Deadly Effects of the Poisonous Bite of the American Rattlesnake

If we do not above mention new experiments, everyone who is only somewhat knowledgeable in natural history of animals, should justly be wondering to see once again an animal described and pictured, which already has been the subject of very many authors. Just as this infamous creature is not lacking in writers [describing it], as many attempts have been made to make it more known through illustrations: in as much we have succeeded over others by the artistic hand of Mr. G. van den Heuvel, we will leave up to the judgment of the art experts.

Among all the authors, quoted below here (*a*) to which one could **[p. 4]** add a good many more, there are certainly none who give more circumstances and better description of these snakes than Mr. Calm and Captain Hall, whereby we should not forget the beautiful illustration of the dissected head of this snake and the true shape of the teeth which we can find in the small work of Dr. Mead; as well as the scholarly gentlemen, Dr. Houttuyn and Watson (whose work was translated into Dutch by the honorable and learned naturalist Dr. C. Nozeman) who have assembled in their quoted works here everything that has been discovered so far about this subject matter.

There are authors who have placed the habitat of these snakes in the East as well as the West Indies; but it appears fairly doubtful to me that, this snake, much-feared for its poisonous bite, can be found anywhere else but in the new continents: one knows that Seba in his Part II pictures and describes several East Indian rattlesnakes (*b*); though one also knows for certain that the first one, which this famous man pictures on *Tab.* 45. *F.4* and describes as a female Ceylon adder-snake, is none other than a young West Indian rattle kind and indeed

the same which we will describe hereafter. I confess with Mr. Buffon (*e*) to often distrust these short and casual cabinet descriptions; the pieces of which these consist, were often times bought for a large part at sales, **[p. 5]** on name lists, not seldom drawn up by people ignorant or without judgment, if not sometimes with a remarkable deceit to mislead; in twenty five years of experience I have come across assured evidence of this too many times.

The major reason on which my doubt rests, namely whether these animals are to be found in the Old World, is this, that travelers in these regions, do not speak of this, or at least [do so] with great uncertainty. Wouter Schouten (*d*) in his East Indian travels, does say that they have heard them rattle in the wildernesses of the Island DingDing, around thirty miles northwest of Malukka [Moluccas], though he declares that as much as they looked for this animal they did not see it. It could thus easily be that they mistook it for the sound of the field cricket, which is considerably bigger in the East and West Indies than here. Having paged through Valentyns extensive work of Old and New East Indies, I find no mention of it, as in a whole series of other travelers who have traversed the East Indies and whose works I have consulted. Mr. Linneus appears to also have concluded that they cannot be not found in the East; because in his *Systema Naturae*, he records all his three species as American, and even the one that Seba states as East Indian: thus we have a desire to report this with more certainty.

In the museum of his illustrious royal highness, the Prince Hereditary Stadhouder, I keep six kinds or varieties, as one wants to call it, among which is one, that I bought from a sale from the Cabinet of Seba, under the name of East Indian. This one appears to me the same as the one he pictures in his *Thesaurus Tab.* 95. *Fig.* 2 *and* 3. It is certain that if we compare these snakes to the ones we know to be American, **[p. 6]** one will find a remarkable difference, but this difference in no way contradicts her right of birth in the New World; because why would this region alone not produce two or more varieties in sort of these animals? which Catesby in Carolina already demonstrates. The sloughing of the snake may also play a considerable part in this. My doubts, namely, whether this sort of snake is native to the Old as well as New World, rest only, as I have said, in that I do not find any report in the East Indies travel descriptions that can be relied upon. The learned Abbot Prevost (*e*) does not mention anything in his description of Ceylon, even though Seba claims to have received it from there.

R. Knox (*f*) who in his description of Ceylon speaks of various snakes and other animals of that island, does not mention anything about it, as is the case with Osbeek (*g*) etc. and in Africa I cannot discover any evidence of these dangerous animals: What remains is to think that Mr. Seba in the report of the habitats of these animals will have been misled.

In our West Indian colony of Surinam one calls these snakes *Boicininga*, and in Dutch rattle or bell snake. Mr. Linneus gives this genus the name of *Crotalophorus*, in which he noted three different sorts, which he names *Horridus*, *Dryinas*, and *Durissus*. He differentiates these kinds by the different number of scales which these animals have underneath on the belly and tail, a distinctive mark (without prejudice to the esteem which we otherwise owe to this great naturalist) which is, like the counting of the fin bones to differentiate **[p. 7]** the types of fishes, of much too uncertain a result to rely on with certainty.

The natural history of these animals having sufficiently been dealt with by Mr. Kalm and others (to which one can add the papers of Marcgraaf, Piso and Nieremberg), it is thus merely my intent to (as we already have started with) put down here the errors, contradictions, and that which others have omitted to do, and my own observations.

One disagrees very much whether this snake, has an inherent fast or slow movement. That which I know from my own experience is certainly not sufficient in all respects, because the long duration of the journey, the closed box, although roomy and covered above with

# BESCHRYVING

VAN EENE

SIERLYK GETEEKENDE, EN OVER HET HOOFD EN DEN HALS TWEE LANGE ZWARTE STREEPEN HEBBENDE

## SURINAAMSCHE RATELSLANG;

NEVENS

NIEUWE PROEFNEMINGEN, IN 'SGRAVENHAGE GENOMEN, OP DE DOODELYKE UITWERKSELEN DER VERGIFTIGE BEET VAN EEN LEEVEND OVERGEBRAGT SOORT DIER SLANGEN;

Zich bevindende, met verſcheiden anderen, in het MUSEUM

VAN ZYNE

DOORLUCHTIGSTE HOOGHEID

*DEN HEERE PRINSE VAN ORANJE EN NASSAUW, ERF-STADHOUDER, ERF-GOUVERNEUR, ERF-KAPITEIN-GENERAAL EN ADMIRAAL DER VEREENIGDE NEDERLANDEN, enz. enz. enz.*

Beſchreven en uitgegeven door

A. VOSMAER,

*Directeur der Vorſtelyke Natuur- en Kunst-Kabinetten, Lid der Keizerlyke Akademie, en Korreſpondent der Koninglyke Akademie der Weetenſchappen van Paryt.*

TE AMSTERDAM,
BY PIETER MEIJER,
MDCCLXVIII.

# NATUURLYKE HISTORIE

EN

## NIEUWE PROEFNEMINGEN,

IN 'SGRAVENHAGE GENOMEN, OP DE DOODELYKE UITWERKSELEN DER VERGIFTIGE BEET

VAN DE

## AMERIKAANSCHE RATELSLANG.

Indien wy hier boven niet van nieuwe Proefnemingen gewag maakten, zoude het elk, die in de Natuurlyke Hiſtorie der Dieren maar een weinig kundig is, billyk verwonderen moeten, op nieuw een Dier te zien beſchryven en afbeelden, 't welk reeds ten onderwerp van zeer veele Schryvers gediend heeft. Zo min nu als het dit beruchte Schepſel aan Schryvers ontbreekt, even zo veel heeft men het getracht door afbeeldingen kenbaarder te maaken: hoe verre nu wy hier in boven anderen, door de teekenkundige hand van den Heer G. VAN DEN HEUVEL, geſlaagd zyn, zullen wy aan het oordeel der Kunſt-kenneren overlaaten.

Onder alle de Schryvers, hier onder aangehaald (*a*), by welken men

(*a*) *Der Konigl. Schwediſchen Academie der Wiſenſchaften. Tom. XIV. p. 316. Tom. XV. p. 52. 189.*
R. MEAD. *A Mechanical Account of Poiſons. Lond. 1747.*
P. FERMIN. *Hiſt. Nat. de la Hollande Equinoxiale. Amſt. 1765.*
T. PISTORIUS. *Beſch. van Surinamen. Amſt. 1763.*
F. WATSON, *De Dierlyke Wereld. Amſt. 1761.*
R. BRADLEY. *Wysgerige Verhandeling. Amſt. 1744. Tab. IX. fig. 1.*
*Journal des Sçavans, Septembre 1764. No. 10. p. 513. Expériences faites par le Capitaine HALL, ſur les effets du poiſon du Serpent à ſonnettes. Extraites des Tranſactions Philoſophiques.*
E. TYSON *Phil. Tranſact. Ang. Vol. XIII. No. 144. p. 25. Idem in* ACTA ERUDIT. *1684. p. 138. Tab. V.*





men nog een goed aantal zoude kunnen voegen, zyn 'er zekerlyk geen, welken meer omſtandigheden en beter Beſchryving van deze Slangen geven, dan de Heeren CALM en Kapitein HALL, by welken wy de fraaije afbeelding van het Ontleede hoofd dezer Slang, en de waare gedaanten der tanden, 't geen wy in het Werkje van Dr. MEAD vinden, niet vergeten moeten; gelyk ook de geleerde Heeren Dr. HOUTTUYN, en WATSON, (wiens Werk door den Eerw. en Geleerden Natuurkenner Dr. C. NOZEMAN in het Hollandſch vertaald is) in hunne hier aangehaalde Werken, alles wat over deze ſtoffe tot noch toe ontdekt is, gevoeglyk by elkander gebragt hebben.

Daar zyn Schryvers, welken het verblyf dezer Slangen zoo wel in Ooſt- als Weſt-Indiën ſtellen; maar het ſchynt my vry twyffelachtig of deze, door derzelve vergiftigende beet zo alom met recht gevreesde Slang, wel ergens anders, dan in de nieuwe Waereld-deelen gevonden wordt: Men weet dat SEBA in zyn II. Deel verſcheide Ooſt-Indiſche Ratel-Slangen (*b*) afbeeldt en beſchryft; doch men weet ook teffens zeker, dat de eerſte, die die beroemde Man op *Tab. 45. f. 4.* verbeeld, en voor een Ceilonſche Wyfjes Adder-Slang beſchryft, geene andere is, dan een jong Weſt-Indiſch Ratel-foort, en wel de zelfde, welke wy hier na beſchryven zullen. Ik beken met den Heer BUFFON (*c*) my dikwyls in die korte en losſe Kabinet-beſchryvingen te mistrouwen; de ſtukken, waaruit dezelve beſtaan, zyn veeltyds voor een groot gedeelte op Verkoopingen

CATESBY. *Nat. Hiſt. of Carolina. Vol. II. p. 41. Tab. 41. 42.*
A. SEBA. *Theſaurus Vol. II. Tab. 45. fig. 4. Tab. 95. fig. 1.*
HOUTTUYN. *Nat. Hiſt. der Dieren enz. Amſt. 1764. 8vo. Vol. I. Part VI. pag. 290. Tab. 45. fig. 1.*
W. SCHOUTTEN. *Ooſt-Indiſche Voyagie. Amſt. 1676. III. Book p. 53.*
CHARLEVOIX. *Hiſt. de la nouvelle France. Tom. V. p. 233.*
LAWSON. *Natural Hiſtory of Carolina. p. 120.*
LINNÆ. *Syſt. Nat. Edit. X. p. 214.*
GRONOVIUS. *Muſ. Ichth. Tom II. p. 70. Id. Zoophyl. Fac. I. p. 28.*
(*b*) *Zie hier boven.*
(*c*) *Tom. X. p. 98.*



pingen gekocht, op Naamlyſten, niet zelden door onkundigen, of zonder oordeel, zo niet ſomtyds met een merkelyk bedrog om te misleiden, opgemaakt; verzekerde proeven hier van zyn my, in een vyf-en-twintig jaarige ondervinding, te veel maalen voorgekomen.

De voornaame reden op welke myne twyffeling beruſt, naamelyk of deeze Dieren in de oude Waereld te vinden zyn, is deeze, dat de Reizigers dier Geweſten daar van niet, of ten minſten zeer onzeker ſpreeken. WOUTER SCHOUTEN (*d*), in zyne Ooſt-Indiſche Reize, zegt wel, dat zy dezelven in de Wildernisſen van het Eiland Dingding, ruim dertig mylen ten Noordweſten van Malakka gelegen, hoorden ratelen, doch hy betuigt daar by, dat zy dit gedierte, hoe zeer zy 'er ook naar zochten, niet gezien hebben. Het kan dus gemaklyk zyn, dat zy het geluid van den Veldkrekel, welke in Ooſt- en Weſt-Indiën merkelyk grooter dan hier valt, daar voor genoomen hebben. VALENTYNS wydloopig Werk van Oud- en Nieuw-Ooſt-Indiën doorbladerd hebbende, vinde ik dat deze 'er zo min van ſpreekt, als eene geheele reeks van andere Reizigers door welken Ooſt-Indiën is doorkruiſt, en wiér Werken ik nagezien hebbe. D'Heer LINNÆUS ſchynt het ook vaſt te ſtellen dat zy in het Ooſten niet gevonden worden; want in zyn *Syſtema Naturæ* ſtelt hy alle drie zyne ſoorten voor Amerikaanſche te boek, en ook zelfs die, welken SEBA voor Ooſt-Indiſche opgeeft: Wy verlangen dûs des aangaande zekerder berichten.

In het MUSEUM van ZYNE DOORL. HOOGHEID, DEN HEERE PRINSE ERFSTADHOUDER, bewaare ik zes ſoorten of verſcheidenheden, zo als men 't noemen wil, en waar onder een, die ik uit de Verkooping van het Kabinet van SEBA, onder de benaaming van Ooſt-Indiſche, gekocht hebbe. Deeze ſchynt my dezelfde als die welke hy in zyn *Theſaurus Tab. 95. fig. 2. en 3.* verbeeldt. Het is zeker dat als wy deeze Slangen, tegen die, welken wy weten dat Ameri-

(*d*) *Zie hier voor in de Lyſt der Schryveren.*

Amerikaanſche zyn, vergelyken, men een merkelyk verſchil zal vinden, maar dit verſchil wederſpreekt geenszins haar recht van geboorte aan de Nieuwe Waereld; want waarom zou dit Geweſt alleen geen twee of meerdere verſcheidenheden in ſoort van deeze Dieren kunnen opleveren? 't geen CATESBY in Carolina reeds aantoont. Ook kan de vervelling der Slang hierin een merkelyk aandeel hebben. Myne twyffelingen, naamelyk, of dit ſoort van Slangen wel zo zeer aan de Oude als aan de Nieuwe Waereld eigen zy, beruſt dan maar alleen, gelyk ik gezegd hebbe, hier op, dat ik in de Ooſt-Indiſche Reisbeſchryvingen, niet het allerminſte bericht desaangaande vinde, waar op eenigen ſtaat gemaakt kan worden. De geleerde Abt PREVOST (*e*) rept 'er niets van in zyne Beſchryving van Ceylon, daar SEBA eveuwel zegt die van daar ontfangen te hebben. R. KNOX (*f*), die in zyne Beſchryving van Ceylon van verſcheide Slangen en andere Dieren van dat Eiland ſpreekt, meld 'er ook niets van, insgelyks OSBEEK (*g*) enz. en in Afrika kan ik ook geene blyken van deeze gevaarlyke Dieren ontdekken: Wat reſt 'er dan anders, dan te denken dat de Heer SEBA in de opgave der woonplaatſen van deeze Dieren zal misleid zyn geweeſt.

In onze Weſt-Indiſche Kolonie te Surinamen noemt men deze Slangen *Boicininga*, en in 't Hollandſch Ratel- of Bel-ſlang. De Heer LINNÆUS geeft de benaaming van *Crotalophorus* aan dit geſlacht, in het welk hy drie onderſcheidene ſoorten heeft opgeteekend, die hy *Horridus*, *Dryinas* en *Durissus* noemt. Hy onderſcheid die ſoorten door het verſchillend getal van ſchubben, welke deeze Dieren onder aan den buik en ſtaart hebben, een kenteeken (behoudens de achting, welke wy anders aan dien grooten Natuurkenner verſchuldigd zyn) even gelyk het tellen der Vingraaten ter on-

der-

(*e*) *Hiſt. Gen. des Voyages. Tom. II. Edit. de la Haye.*
(*f*) *'t Kyland Ceylon in zyn binnenſte &c. Amſt. 1693. 8vo.*
(*g*) *Reize nach Oſtindie und China. Rotterd. 1765.*



derſcheiding der Viſch-ſoorten, van veel te ongewiſſe uitkomſt om daar op met zekerheid te kunnen aangaan.

De Natuurlyke Hiſtorie deezer Dieren door den Heer KALM en andere genoegzaam afgehandeld zynde, (waarby men nog de Schriften van MARCGRAAF, PISO en NIEREMBERG voegen kan) zo is myn voornemen maar alleen (gelyk wy alreeds daar mede begonnen zyn) de misſlagen, tegenſtrydigheden, en dat geene 't welk anderen verzuimd hebben, en myne eigene waarnemingen, hier ter neêr te ſtellen.

Men is het zeer oneens of deeze Slang eene vlugge dan wel eene traage beweeging eigen zy. Dat geene, 't welk ik door eigene ondervinding weete, is zekerlyk niet in allen opzichte voldoende, want de langduurigheid van de reis, de beſloote, hoewel zeer ruime en van boven met glas overdekte kiſt, waarin de Ratel-ſlang by my ontfangen zich bevond, zyn, ongetwyffeld, hinderlyk, aan Dieren, die in het wild gewoon zyn te leeven; zo dat zy, door afgematheid en vrees, belet worden hunnen waaren aart te vertoonen. De eerſte veertien dagen, der zeven en twintig, die zy by my geleefd heeft, (niet tegenſtaande deeze Slang toen reeds al meer dan 23 weeken, zonder te eeten, gevangen was geweeſt,) was dezelve nog zeer leevendig, kruipende geduurig door de kiſt heen en weder, komende dikwyls tot boven aan het glas; en uit al de beweegingen, die ik haar in dien tyd heb zien maaken, heb ik my nimmer kunnen overtuigen, dat deeze Dieren van een langzaamen en traagen aart zyn, vooral wanneer zy zich in het wild ophouden. Het geval, 't welk ik, in tegenwoordigheid van een goed vrind en mynen knecht, met dezelve gehad hebbe, wanneer wy haar in een daar toe geſchikte kiſt, met glas bedekt, overbragten, en waarvan wy hier na ſpreeken zullen, kan niets anders dan eene vaardigheid te kennen geeven, welke my, of mynen toenmaaligen knecht, zeer ſlecht had kunnen bekomen.

Eenige Schryvers maaken gewag van een ſterken ſtank, welke deeze Slangen, getergd wordende, afgeeven. Dit heb ik niet onder-

von-



vonden, terwyl dezelve in zyne eerſte kiſt, welke van oud droog eikenhout, van binnen met witte lynverf beſtreeken, bewaard werd. Doch haar naderhand in een grooter nieuwe vuuren-houten kiſt overbrengende, rook de eerſte kiſt, door het op den bodem liggende vochtige zand, zeer ſterk, 't welk veelen, hoewel verkeerdelyk, voor een ſtank der ſlang namen.

Niet tegenſtaande alle aangewende poogingen heb ik deeze Ratelſlang, zo min als onze gemeene inlandſche Slangen (welken in het Sticht by Utrecht en elders veel gevonden worden) aan het eeten kunnen krygen. Alles wat ik dezelve voorwierp was vruchteloos; alleenlyk meent men haar eens melk te hebben zien drinken, doch ook niet meer dan eens, en zulks nog vry onzeker; want hoe naauwkeurig ik op de vermindering der melk acht gaf, 't welk ik, wegens een teeken, 't geen zich aan den rand van het bakje bevond, gemaklyk doen konde, kon ik niet zien dat de melk in het bakje verminderde, hoewel de ſlang 'er haar bek eenigen tyd geboogen in hield. Het zelfde gebeurde met een kom met enkel water, door welke zy dikwyls heenen kroop, en 'er ſomtyds in liggen bleef.

Het ſcheen my toe, nevens zeer veele andere perſoonen, die deeze Slang by my gezien hebben, dat de Dieren, welken wy haar voorwierpen, en waar van wy d'uitkomſt hier na melden zullen, eene ſchrikkelyke gewaarwording van deezen hunnen algemeenen vyand hadden. Zo dra werden zy niet by denzelven gebragt, of zy zochten zich in een hoekje te verbergen, en hier in, door een ingebragt ſtokje, verhinderd wordende, liepen zy, als reeds den doodſchrik gezet hebbende, hunnen met den ſtaart geduurig ratelenden vyand te gemoet. WATSON beſchryft dit betooverend vermogen zeer fraai, 't welk men deeze Slangen, door hunnen prooi ſterk aantezien, toekent, en waar door alle Dieren haar als in den opgeſparden muil zouden loopen of vallen. Dan ik geloof, dat men zulks nog meer, door deeze zonderlinge eigenſchap in ſommige menſchen, aldus zoude kunnen ophelderen. Indien het

zeker



zeker is dat alle Dieren, inzonderheid klein Gevogelte, deezen hunnen vyand kennen, en door eenen dood-ſchrik op het zien van hem bevangen worden, zou het met hun even eens kunnen gaan, als met vreesachtige menſchen, die op eenen ſmallen en hoogen weg, of op een open toorn klimmen, en die gewisſlyk (door de vreeze dusdanig geprangd) van boven neder zouden ſtorten, indien men hun niet te hulp kwam; dit kan ook een betooverend vermogen, 't geen de vrees alleen veroorzaakt, genoemd worden.

Men is nog in twyffel, of deeze Slangen uit gramſchap, dan uit vreeze, met haaren ſtaart ratelen. Myns bedunkens kan het beide waar zyn, en nog in een derde geval plaats hebben; naamelyk, om, in den tyd der paaring, elkander ter byeenkomſt uit te lokken; gelyk wy weeten dat in zeer veele Dieren plaats heeft: hoe wel 't ook zyn kan, dat de goedheid en voorzorge van het Opperwezen dit geluid alleen geſchikt hebbe, om den menſch te waarſchouwen. Het heeft my, in myne proefnemingen, altyd toegeſchenen, dat eerſt de vrees, daar na de gramſchap haar ter rateling aanſpoorde. Wanneer wy eenig Dier, 't zy een Muis of Vogel, by de Slang wierpen, kroop in 't eerſt de Slang verſchrikt weg en ratelde; daar na, terwyl de Vogel of Muis benaauwd rond liep, herſtelde zy zich weêr, en bleef ratelen, tot dat zy het Dier gebeten had. Met hare ſchubben, die zy op het lyf heeft, heb ik haar nooit geluid hooren maaken, ſchoon ſommigen zeggen dat zy zulks doet.

Verſcheiden Schryvers zyn van gedachten, dat de ouderdom der Slang, uit het getal der leden, waar uit de ratel beſtaat, kan gekend worden; andere ſpreeken dit wederom tegen, doch met geen meerder recht, zo 't my toeſchynt, dan hunne party. Wy kennen de kringmerken der Runderen, en de in-kerving der tanden by de Paarden. SEBA verbeeld eene Slang met veertig leden in den ratel; dan dit is zeldzaam, want doorgaans hebben zy 'er niet boven tien of twaalf. De wyfjes, zegt men,

glass, in which the rattlesnake was when I received it, are no doubt annoying to animals, that are used to living in the wild, so that they are prevented due to fatigue and fear to show their true nature. The first fourteen days, of the twenty-seven that she lived with me, (not withstanding that this snake by then had been captured more than 23 weeks ago without eating) it was still very lively, crawling continually back and forth in the box, often coming up above the glass; and from all the movements that I have seen her make in this time, I was never convinced that these animals are of a slow and sluggish nature, especially when they are in the wild. The instance, in which I, in the presence of a good friend and my servant, have had with this animal, when we transferred her in a suitable box covered with glass, and of which we will speak hereafter, can but show a skillfulness which for me or for my then servant could have ended very badly.

Some writers speak of a strong smell which these snakes emit when being tormented. This I did not experience **[p. 8]** while this one was kept in his first box of old dry oak and painted on the inside with white lime paint. Although while transferring her afterwards in a bigger new pine box, the first box smelled very strongly from the moist sand at the bottom, which many, although erroneously, have been taken as the smell of a snake.

Despite all attempts, as with our common domestic snakes (which are found in the Sticht near Utrecht and other places), I was unable to get this rattlesnake to eat. Everything I threw at it was fruitless, except once it appears she was drinking milk, though no more than once, and this is rather uncertain, for however carefully I observed the diminishing of the milk, which I, because of a mark on the rim of the bowl, could easily do, I could not see that the milk in the bowl had diminished, although the snake held her mouth over it for a time. The same happened with a bowl of water, through which she crawled often and sometimes laid down in.

It appeared to me, as to very many other persons, who observed this snake with me, that the animals, which we threw at her and of which we will report the outcome hereafter, had a terrible awareness of this their common enemy. As soon as they were brought to it, they sought to hide in a corner, and prevented from doing this by a small placed stick, they walked with mortal fright towards their tail-rattling enemy. Watson describes this enchanting power attributed to these snakes very nicely, by looking at their prey intently, and through which all animals would walk of fall into the wide open mouth. I believe, that one thus could explain this even further by this remarkable characteristic in some human beings. If it is certain **[p. 9]** that all animals, especially small fowl, know their enemy, and are caught in a mortal fright at seeing it, the same could happen to them as with faint-hearted humans, who climb on a narrow and high road or an open tower, and who certainly would (in the extremity of distress) throw themselves down, if one did not come to their aid; this can also be called a spell-bound power, caused only by fear.

One is still in doubt whether these snakes rattle their tails out of anger or fear. In my opinion it can be both, and still happen in a third case; namely in mating season to provoke a meeting; as we know that happens with very many animals: although it can also be that the goodness and precaution of the supreme being only made up this sound to warn humans. It has always seemed to me in all my experiments that first fear and then anger enticed her to rattle. When we threw some animal, be it a mouse or a bird, at the snake, first the snake crawled away startled and rattled; then while the bird or mouse walked around anxiously, she recovered again, and continued to rattle until she bit the animal. With her scales, which she has on the body, I have never heard her make a sound, although some say that she does this.

Several authors are of the opinion that the age of the snake can be determined by the number of parts that make up the rattle; others again contradict this, though with no more right, it seems to me, than they are allowed.

We know the ring marks of cattle, and the carvings of the teeth of horses. Seba pictures a snake with forty parts in the rattle; this is rare then, since generally they have no more than ten or twelve. The females, one says, always have **[p. 10]** fewer parts in her rattles. Consequently it can be that one sometimes sees large snakes with few, and small ones with many, scales in the rattles; though it can then not be true that the number of parts in the rattle indicate the age of the animal; unless one wanted to assume that the females die quicker and grew quicker. Among the many that I have seen in the cabinets, I have sometimes found large snakes with few and small ones with many rattles: The size of these snakes is dissimilar: Mr. Kalm speaks of a length of only four to six feet; Watson puts them at seven to twelve, and Fermin says fifteen feet; although this is doubtful.

Some say the snakes do not have hearing because they cannot find any openings for it, these are of a certainty, like in the turtle, hidden under the scaly outer skin. We will await, shortly, some clarification from Professor P. Camper, in Groningen, who is working on research on the hearing of the animals.

The way in which these snakes are captured alive if they are curled up, or, like one says in the country there, lying asleep, one reports to me consists of the black or African negroes crawling up to them, and very swiftly grabbing them close under the head, so that they cannot turn it. The snake then first wraps itself around the hand and arm, but all these movement are fruitless, and do not enable her to free herself.

It has seemed to me that this snake, which I have had alive, could determine the light in the eyes, just like with cats, by two membranes drawing nearer to one another: because, after death, the perpendicular stripe, which we had observed so often changing, was much wider. But, in the last days of her age, I even began to wonder if she were not already blind, since I did not detect any emotion **[p. 11]** when I let a small stick hover close to her eyes; but there would be when one lightly touched her head with it.

While I write this, one is bringing me the twelfth, much enlarged and changed, edition, of the Nature-*Systema*, by Mr. Caroli a Linné (*h*) which ends with the fishes, so that the insects and wormlike animals still need to follow. Now there are five sorts of these snakes, and thus this genus has increased by two. I give this great naturalist, as all others, consideration (while I await answers to letters written by me about this subject) if there are truly this many different species of these animals known, as one imagines? The different varieties (as I assume her now to be, until better experience teaches me differently) which I keep in the royal collection, give me sufficient reason to doubt whether there can be more than four truly different ones named? Those belonging to Seba (*i*) (how much different on the face of it, they may appear) I think to be one species, and only differ on account of age, because with that one, which is kept in the royal collection and in other cabinets, I very clearly believe to have discovered that the ornate design fades with the increase in age: and thus there appears to me three other snakes, that are to be found elsewhere in Seba (*k)*, as separate species from the previously mentioned, to which one can, with certainty, add to the two of Catesby, as the fourth. I decide here, as one sees, nothing for certain; I tried through my doubts to only discover the certain. What a difference can the shedding of the skin, the differing times of the seasons of the year in which they are **[p. 12]** captured, and the difference of the sexes give? One can look at what Catesby himself says about this, of his two kinds of these snakes so different in color and marking.

The differing number of belly and tail scales, which Mr. Linnéus, certainly not without reason, indicates as the only characteristic to differentiate the species, should, one would say, settle all these doubts; I have said already then, and repeat here once again, that this characteristic cannot be maintained and is not a clear indication. I have examined all rattlesnakes in the royal collection with every attention in this regard; counted the shields, or

rather the scales, several times; and what was the outcome? The same one, that was already known to me from research by others; namely, that, among the six, there was only one that corresponded in the number of scales with the *Horridus* of Mr. Linnéus. One can see here what I have encountered.

On one very large and fat snake, having a Rhineland length of 4 feet and 8 duim and whose rattle has 11 parts, I count, very carefully, 170 belly, and 25 tail scales.

On a smaller one, of the same species, though being younger and somewhat neater in design, (it being the one, which I have had alive and the one this treatise is about), that has a length of 3 feet and one-half duim, and has six scales in her rattle, I find 168 belly and 29 tail scales.

On another very nice small, thin one, also of the same species, but having only 3 scales in the rattle, I find 171 belly and 21 tail scales. These three have all been sent to me from Surinam, and the same ones also pictured by Seba (*e*). [To what extent] can [these data] be relied [upon]? By saying that with this count two or four scales are of no consequence one does not tell me much positive about this discovery? Which species of Mr. Linnéus should we assume this one to be then? His *Horridus*, or the *Mutus*? **[p. 13]** In three others, which are mostly ash gray in color, some with more or less faint markings, and most resembling the one of Mr. Seba, Plate. 95, I did find it with the scales. [ed. note: the previous sentence is a proper translation of the original Dutch, but the intent is not clear].

One I find, (the one I bought at the sale of Seba [specimens], and is reputed to be a Ceylon one), with 6 rattle scales; it appears to me to have 162 belly and 20 tail scales; then this is doubtful, unless the snake was kept in poor conditions.

In a second, recorded by me as a West Indian, I come across 10 rattle scales: this one has 163 belly and 28 tail scales.

A third, also a West Indian, with 6 scales, has 167 belly and 23 tail scales. This is the only one that corresponds with the *Horridus* of Mr. Linnéus in the number of scales.

We will after this digression (in which we only wanted to demonstrate the uncertainty of these characteristics, and which we much rather want to deduce from the shape of the head and the tail) once again go on to our subject.

On the 20th of the month of September, of the year 1765, this snake was forwarded to me, alive, via Amsterdam, for the cabinet, by Jan Nepvue, Esq., Judge Advocate in Surinam. I received it in a small wooden barrel, covered on top with thick lead, in which some holes had been made, though these did not allow a view of the animal. With the help of my servant, I partially loosened the lead, and tying a sort of linen bag under the lead on top around the top of the barrel, gathering the open end of the sack together we put [it] into a small box, which was fitted on top with a sliding lid with thick glass. We also saw the snake fall into the box, still partially covered by the linen cloth, we believed: though the servant pulling the sack swiftly from the box, the snake shot out more than 8 or 10 duimen at the same time with its head. My presence of mind saved us; I had **[p. 14]** a towel in my hand; my friend who took care of the sliding of the glass lid, squeezed the snake a little, and I, armed with the towel, fortunately pushed the snake in the box.

There are people who have wanted to assure me that these poisonous snakes lose their poison after having been in captivity for some time: One has told me several certain stories, as proof of this; though the following daily-account, carefully recorded by me, for which the experiments were taken, in the presence of royal and other persons, will, as I believe, clear this matter without a doubt.

Saturday, 21st September, 1765, the snake was sent to me from Amsterdam: I placed it in the afternoon, in a reasonably handy small box or crate, fitted on top with glass, and on the side on top with a small slide, to be able to throw things at the animals without any danger. The bottom of this box was covered with common sand. The snake was very strong, robust and lively, continually crawling back and forth through the box; often she came to the top of the case, looking for an escape.

hebben altyd minder leden in haare ratels. Hier door kan het zyn, dat men somtyds groote Slangen met weinig, en kleine met meerder schellen in de ratels ziet; doch dan kan het ook niet waar zyn, dat het getal der leden in den ratel den ouderdom van het Dier aanduide; ten waare men wilde veronderstellen, dat de wysjes schielyker stierven, en raffer aangroeiden. Onder de veelvuldigen, die ik in de Kabinetten gezien hebbe, heb ik somtyds groote Slangen met weinig, en kleine met veele ratels gevonden: De grootte deezer Slangen is ongelyk: de Heer KALM spreekt maar van vier tot zes voeten lengte; WATSON stelt die van zeven tot twaalf, en FERMIN zegt van vyftien voeten; doch dit is twyffelachtig.

Sommigen zeggen dat de Slangen geen gehoor hebben, om dat men 'er geene openingen voor vind, die zekerlyk, gelyk in den Schildpad, onder de schubachtige opperhuid verborgen zyn. Wy hebben hier over, in 't kort, eenige opheldering te wagten van den Hoogleeraar P. CAMPER, te Groningen, die met het onderzoek van het gehoor der Dieren bezig is.

De wyze, op welke deeze Slangen leevende gevangen worden, bericht men my hier in te beftaan, dat de zwarte of Afrikaanfche Negers dezelven, als zy in eengerold, of, zo als men daar te Lande zegt, te flaapen liggen, weeten te bekruipen, en haar heel gezwind digt onder den kop vatten, zo dat zy die niet kunnen omdraaijen. De Slang flaat zich dan wel ten eerften om de hand en den arm, doch alle deeze beweegingen zyn vruchteloos, en niet in ftaat om haar vry te maaken.

Het heeft my toegefchenen dat deeze Slang, welke ik leevende gehad hebbe, het licht in de oogen, even gelyk de katten, door twee tot elkaêr naderende vliezen kon bepaalen: want, na den dood, was de *perpendiculaire* ftreep, dien wy zoo dikwils met verandering waargenomen hadden, veel wyder. Maar, in de laatfte dagen van haaren leeftyd, heb ik zelfs beginnen te twyffelen, of zy niet reeds blind was, vermits ik geene aandoening



ning befpeurde, als ik het ftokje digt voorby haare oogen deed zweeven; maar wel als men haar maar even den kop daarmede aanraakte.

Terwyl ik dit fchryve, brengt men my de twaalfde, veel vermeerderde, en veranderde druk van het Natuur-*Syftema*, van den Heer CAROLI A LINNÉ (*b*), het welk met de Visfchen eindigt, zo dat de Infecten en wormachtige Dieren nog moeten volgen. Hier zyn thans vyf foorten deezer Slangen, en dus is dit geflacht met twee vermeerderd. Maar ik geef deezen grooten Natuur-onderzoeker, gelyk allen anderen in overweeging, (midlerwyl ik antwoord afwachte op de brieven, door my over dit onderwerp gefchreeven,) of 'er waarlyk wel zo veele onderfcheidene foorten deezer Dieren bekend zyn, als men zich inbeeld? De verfcheidenheden (gelyk ik dezelve thans achte, tot betere ondervinding my anders onderrichte) welken ik in de Vorftelyke verzaameling bewaare, geeven my genoegzame reden om te twyffelen, of 'er wel meêr dan vier waare verfchillende opgenoemd kunnen worden? Die by SEBA (*i*), (hoe zeer dit op 't oog anders fchynen mooge,) denk ik dat één foort zyn, en maar alleen door ouderdom onderfcheiden, vermits ik by die, welke in de Vorftelyke verzaameling, en in andere Kabinetten bewaard worden, zeer klaar meen ontdekt te hebben, dat de fierlyke teekening met de vermeerdering der jaaren verloopt: en dus koomen my nog drie andere Slangen, die by den zelfden SEBA (*k*) elders te vinden zyn, ook maar als afzonderlyke foorten voor van de voorgaanden; waar by men, met zekerheid, de twee van CATESBY, als de vierde kan voegen. Ik bepaal hier, gelyk men ziet, niets zekers; ik tracht door myne twyffelingen maar alleen het zekere te doen ontdekken. Welk een verfchil kan de vervelling van huid, de onderfcheiden tyden der faizoenen van het jaar, waar in zy

(*b*) *Syft. Naturæ. Edit. Duodecima, reformata. Tom. I. Holm.* 1766.
(*i*) *Tab. XLV. fig.* 4. & *Tab. XCVI fig.* 1. (*k*) *Tab. XCV.*





zy gevangen worden, en het onderfcheid der *Sexe* niet geeven? Men zie hier over na wat CATESBY zelf zegt, van zyne twee, zo in kleur als teekening, verfchillende foorten deezer Slangen.

Het verfchillende getal der buik-, en ftaart-fchilden, 't geen de Heer LINNÉUS, zekerlyk niet zonder reden, maar als een kenmerk opgeeft om de foorten te onderfcheiden, moeft, zou men zeggen, alle deeze twyffelingen beflechten; dan ik heb reeds gezegd, en herhaal hier zulks nogmaals, dat dit kenmerk niet doorgaat, en geene zekere teekens heeft. Ik heb alle de Ratel-flangen der Vorftelyke verzaameling met alle oplettenheid in dit opzicht onderzocht; de fchilden, of liever fchubben, verfcheiden maalen geteld; en welke was de uitkomft? dezelfde, die my door het onderzoek van anderen reeds bekend was; naamelyk, dat, onder de zes, maar een was, die in geenlvan fchubben met den *Horridus* van den Heer LINNÉUS over een kwam. Men kan hier zien wat ik ondervonden hebbe.

Aan eene zeer groote en dikke Slang, de lengte van 4 voet en 8 duim Rynlands hebbende, en welker ratel met 11. leden voorzien is, tel ik, zeer naauwkeurig, 170. Buik-, en 25. Staart-fchubben.

Aan eene kleindere, van dezelfde foort, doch, als jonger, wat netter in teekening, (zynde die, welke ik leevende gehad hebbe, en over welke deeze Verhandeling gaat,) die lang is 3. voet en een halven duim, en zes fchellen in haren ratel heeft, bevind' ik 168. Buik-, en 29. Staart-fchubben.

Aan nog een zeer fierlyke kleine, dunne, mede van 't zelfde foort, maar 3. fchellen in den ratel hebbende, vind' ik 171. Buik-, en 21. Staart-fchubben. Deze drie zyn my allen van Surinamen toegezonden, en dezelfden, die SEBA ook verbeeld (*e*). Hoe weinig ftaars is hier nu op te maaken? Met te zeggen dat het, by deeze telling, op geen twee of vier fchubben aankoom', zegt men my niet veel voordeeligs van deeze uitvinding? Voor welke foort van den Heer LINNÉUS moeten wy nu deezen neemen? voor zynen *Horridus*, of voor den *Mutus*? In

(*e*) *Tom. II. Tab.* 43. *fig.* 4.



In drie anderen, welken meeft aflch-grauw van koleur zyn, fommigen met meer of minder ftaauwe teekening, en het meeft overeenkomende met die by den Heer SEBA, *Tab.* 95. heb ik het dus met de fchubben gevonden.

Een vinde ik, (die ik op de Verkooping van SEBA gekogt hebbe, en voor eene Ceilonfche te boek gefteld word), met 6. ratelfchellen: deeze fchynt my 162. Buik-, en 20. Staart-fchubben te hebben; dan dit is twyffelachtig, vermits de Slang wat flecht bewaard is.

In een tweede, voor eene Weft-Indifche by my geboekt, ontmoeten my 10. ratelfchellen: deeze heeft 163. Buik-, en 28. Staart-fchubben.

Een derde, mede een Weft-Indifche, met 6. fchellen, heeft 167. Buik-, en 23. Staart-fchubben. Deeze alleen komt met den *Horridus* van den Heer LINNÉUS, in 't getal der fchubben, overeen.

Wy zullen na deeze uitweiding (in welke wy de onzekerheid van deeze kenmerken maar hebben willen aantoonen, en welken wy veel liever uit de gedaanten van het hoofd, en den ftaart willen afleiden) wederom tot ons onderwerp overgaan.

Den 20. der maand September, van den Jaare 1765., werd my deeze Slang, leevende, over Amfterdam, voor het Kabinet, toegezonden door den Wel-Ed. Geftr. Heere JAN NEPVEU, Fiscaal op Surinamen. Ik ontfing dezelve in een klein houten vaatje, boven op met dik lood bedekt, waar in eenige gaten gemaakt waren, doch die niet toelieten iets van het Dier te zien. Ik maakte, met hulp van mynen knegt, het lood gedeeltelyk los, en een foort van linnen zak, boven om den ton, onder 't lood bindende, ftaken wy, het open einde deezer zak by elkaêr neemende, op die wyze in een kasje, 't geen van boven met een fchuivend dekzel met dik glas voorzien was. Wy zagen de Slang ook in het kasje vallen, nog gedeeltelyk door den linnen doek, zo wy meenden, alleen bedekt zynde: doch de knegt de zak wat fchielyk uit het kasje trekkende, was de Slang daar te gelyk met het hoofd meer dan 8. of 10. duimen buiten gefchooten. Myne tegenwoordigheid van geeft redde ons; ik had

Sunday, the 22nd, nothing to be had, we left her alone. I gave her bread, flies, fruits, etc., though she did not take anything.

Monday, the 23rd, in the evening having gotten a live bird, being a female greenfinch which I put in the box: the snake rattled then very strongly for the first time, and appeared to watch the bird continually, wanting to wait for it. This bird, very feeble in its legs, and very afraid, crawled into a corner of the box without moving, and this lasted until the next morning of which we will speak now.

Tuesday, the 24th, having risen early in the morning, and eager to find out how things were with the bird, I found it still in the same sport, the snake and it watching each other. At seven thirty I heard some stirring in the box, which stood in a corner of the room and **[p. 15]** the bird, which had still been very much alive a few minutes before was dead; very likely bitten by the snake, and passed away shortly after.

That same morning, at ten o'clock, his royal highness, the Lord Prince Stadhouder, and some other gentlemen of the Court, came to see the snake; I gave it another similar bird which was still alive, although flying around very scared. The rattling snake only waited for a brief time, until the animal was within her reach, rushed forward, and bit it in the thick wing joint. The bird squeaked, crawled in a corner, kept still for a few moments, but hereafter it was overcome by convulsions, and died within 10 minutes. The snake curled up directly after the bite, rattled for awhile, and then kept still.

Wednesday, Thursday and Friday, the 25th, 26th and 27th, I gave her nothing other than such things which I deemed useful to see if we could get her to eat: I left the dead birds with her, though she did not touch anything, but crawled back and forth over them. If we hit the box, or touched her with a long stick, she rattled so that one could hear it across the entire room.

Saturday, the 28th, in the morning, their illustrious highnesses, the Lords Princes of Weilburg and Saerbruk, and some other gentlemen came. Having left another bird in the box again, it was bitten immediately by the snake, so that the bird squeaked. After having sat still for a little while, the bird vomited up, in continuous convulsions, his shortly before eaten hemp seed, and died in convulsions in 22 minutes. Two or three days after I had put the snake in the box, it voided some waste; this resembled exactly crumbly, finely pulverized yellow sulphur, and was mixed with some liquid; this excrement, which she had deposited in a corner of the box, made the walls, which had been painted with white lime, black.

In the afternoon, at five o'clock, his illustrious highness, **[p. 16]** the Lord Prince Hereditary Stadhouder, came accompanied by the Lords Barons of Wulcknitz and Voogt, as well as the Gentlemen Professors Weis and Gaubius, and others. One again placed a bird with the Snake, which walking around scared and flying, looked for an escape. The snake, possibly tired from the morning, missed biting the restless bird several times, then finally it hurt it in the joint of the wing. The bird crawled in a corner, was immediately overcome by convulsions, and died within four minutes.

Sunday, the 29th, having caught a mouse, I gave this to her in the evening at half past eight, hoping she would eat this drumstick, being a tasty morsel for Snakes. Having left the mouse in the box, it walked back and forth, although wildly, for quite awhile, and even around and over the snake, which finally bit its prey in the ribs: at once the animal (that had squeaked very loudly at the bite) fell into heavy convulsions; and in less than one and a half minute, the mouse died. At once after these experiments of the snake's bites, the Lord Baron de Hochepied (who was with me then) and I saw, a strange action of the snake, one which we had never seen before. Immediately after the bite, (where in contrast the snake otherwise had kept still), she moved in continuous movement with the head against the glass, gaped and yawned at least fifteen or twenty times in this way, in short succession, opening its mouth as widely as possible, often very tilted and crooked, in a terrifying way.

een hand-doek in de hand; myn vriend, die op het toeſchuiven van het glazen dekſel paſten, kneldе de Slang een weinig, en ik ſtiet, met den hand-doek gewapend, de Slang gelukkig in het kasje.

'Er zyn menſchen, welken my hebben willen verzekeren, dat deeze vergiftigende Slangen, eenigen tyd gevangen geweeſt zynde, haar vergif zouden verliezen: Men heeft my verſcheiden verzekerde Hiſtoriën, ten bewyze daar van, bygebragt; doch het volgende Dag-verhaal, by my naauwkeurig opgeteekend, en waar van de proeven, in de tegenwoordigheid van Vorſtelyke en andere Perſoonen, zyn genomen, zal, zo ik geloof, deeze zaak geheel buiten twyffel ſtellen.

Saturdag, den 21. September 1765. werd my de Slang van Amſterdam gezonden: ik plaatſte die, des middags, in een, daar toe redelyk bekwaam, kasje, of kisje, boven op met glas voorzien zynde, en ter zyde van boven met een ſchuifje, om het een of ander, zonder gevaar, het dier te kunnen toewerpen. De bodem van dit kasje was met gemeen zand bedekt. De Slang was zeer ſterk, fors en leevendig, geduurig door het kasje heen en weêr kruipende; dikwils kwam zy tot boven aan het glas, maar eenige uitkomſt omziende.

Zondag, den 22. niets kunnende krygen, lieten wy haar in ruſt. Ik gaf haar brood, vliegen, vruchten, enz. doch zy nam niets.

Maandag, den 23. des avonds een leevenden Vogel krygende, zynde een Wyfjes-Groeninger, deed ik denzelven in het kasje: de Slang ratelde toen voor het eerſt zeer ſterk, en ſcheen, den Vogel geduurig aanziende, denzelven te willen afwachten. Deeze Vogel, zeer gebrekkig aan de pooten zynde, en zeer benaauwd, kroop in een hoek van de kas, zonder beweeging, en dit duurde zelfs tot den volgenden morgen, van welken wy nu ſpreeken zullen.

Dingsdag, den 24. 's morgens vroeg opſtaande, en begeerig te weeten hoe het met den Vogel was, vond ik denzelven nog op zyn oude plaats, de Slang en hy elkaêr aanzienden. Om half acht uuren hoorde ik eenig gewoel in 't kasje, 't geen in eenen hoek der kamer ſtond, en



en de Vogel, die, voor weinige minuuten, nog ſris leevend was, was dood; zeer waarſchynelyk door de Slang gebeeten, en kort daar op geſtorven.

Dien zelfden morgen, om tien uuren, kwam ZYNE DOORL. HOOGHEID, DE HEER PRINS ERFSTADHOUDER, en eenige andere Heeren van het Hof, de Slang bezien; ik gaf dezelve een anderen dergelyken Vogel, die ſris leevend was, doch zeer bang in 't ronde vloog. De ratelende Slang wachte maar even zo lang, tot dit Dier in haar bereik was, ſchoot toe, en beet het in het dikke vleugel-lid. De Vogel piepte, kroop in een hoek, hield zich eenige oogenblikken ſtil, maar hier op overvielen hem ſtuiptrekkingen, in welken hy binnen 10. minuuten ſtierf. De Slang kroop aanſtonds, na de gedaane beet, in een, ratelde nog eenigen tyd, en hield zich verder ſtil.

Woensdag, Donderdag en Vrydag, den 25., 26. en 27., gaf ik haar niets, dan zulke dingen, die ik dienſtig oordeelde om te zien of wy haar aan 't eeten konden krygen: ik liet de doode Vogels by haar, doch zy raakte niets aan, maar kroop 'er over heen en weêr. Als wy aan de kiſt ſtieten, of met een lang ſtokje haar aanraakten, ratelde zy, zo dat men het zelve de geheele kamer door konde hooren.

Saturdag, den 28. des 's morgens, kwamen HUNNE DOORLUCHTIGE HOOGHEDEN, DE HEEREN PRINSEN VAN WEILBURG EN SAERBRUK, en eenige andere Heeren. Weêr een Vogel in het kiſtje gelaaten hebbende, werd dezelve terſtond door de Slang gebeeten, zo dat de Vogel piepte. Na een weinig ſtil-zittens, braakte de Vogel, in geduurige ſtuiptrekkingen, zyn kort te voren gegeeten kennipzaad uit, en ſtierf in 22. minuuten, in ſtuipen. Twee à drie dagen, na dat ik de Slang in het kasje gebragt had, loosde dezelve eenigen afgang; deeze geleek volmaakt naar brokkelige fyn-gekloppte geele zwavel, en was met eenig vogt vermengd; dit uitwerpzel, 't geen zy in eenen hoek van het kasje gelegd had, maakte de wanden, welken met witten lym geverfd waren, zwart.

Des namiddags, ten vyf uuren, kwam ZYNE DOORL. HOOGHEID

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DE HEER PRINS ERFSTADHOUDER, vergezeld van de Heeren Barons van WULCKNITZ, en VOOGT, nevens de Heeren Profeſſoren WEIS en GAUBIUS, en anderen. Men plaatſte by de Slang weder een Vogel, welke, benaauwd rond loopende, en vliegende, naar uitkomſt zogt. De Slang, mogelyk van 's morgens vermoeid, beet verſcheiden reizen op den onruſtigen Vogel mis, dan eindelyk kwetſte zy hem in het lid van den vleugel. De Vogel kroop in een hoek, werd aanſtonds door ſtuip-trekkingen overvallen, en was dood in vier minuuten.

Zondag, den 29. een Muis gevangen hebbende, gaf ik haar die, des avonds om half 9. uuren, in hoop dat zy dit boutje, als een lekker brokje voor de Slangen, zoude op eeten. De muis in 't kasje gelaaten hebbende, liep deeze vry lang, doch zeer wild, been en weder, en zelfs om en over de Slang, die eindelyk zyn prooi in de ribben beet: terſtond verviel het Dier (dat by de beet zeer ſterk gepiept had,) in zwaare ſtuip-trekkingen; en, in minder dan een en een halven minuut, ſtierf de Muis. Aanſtonds na deeze proefneming van het byten der Slang, zag de Heer Baron de HOCHEPIED (die toen by my was) nevens my, een zonderling bedryf der Slang, 't welk wy te voren noch nooit gezien hadden. Terſtond na de beet, (daar in tegendeel de Slang zich anders ſtil hield,) begaf zy zich in geduurige beweeging met het hoofd tegen het glas, gaapte en geeuwde op deeze wyze wel vyftien- of twintig-maalen, kort op elkander, den bek, zo wyd mogelyk, dikwils zeer ſchuin en ſcheef, verſchrikkelyk open ſperrende. By deeze gelegenheid liet zy ook haare vergiftigende wapentuigen, de twee, ter wederzyden, voor aan boven in den bek ſtaande, en een weinig krom geboogen tanden, ten allerduidelykſte geduurig zien, en ratelde, gelyk in alle de voorige reizen, toen zeer ſterk. Wy raakten, by dit zonderling verſchynzel, in 't vermoeden, of de Slang ook haare tanden op de ribben der Muis mogt bezeerd hebben.

Saturdag den 5. October. Tot deezen tyd liet ik de Slang in ruſt, de Muis, en 't geen wy verder bedachten, by haar laatende, om

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te zien of zy wilde eeten; dan alles was vruchteloos. Ondertuſſchen, het kasje, of kisje, in het welk zy zich bevond, wat te klein achtende, had ik een ander, van vuurenhout, doen maaken, 't geen veel grooter was, en 't welk men op een derde konde afluiten, door een nederzakkende ſchuif. Ik kreeg hier door gelegenheid, om alles, 't geen ik wilde, zonder gevaar, in deeze kiſt by de Slang te brengen, door middel van haar met een ſtokje in de groote ruimte te jagen, welke ik dan afſloot, en het afzonderlyk met glas voorzien zynde dekzel maar op ſloeg. Het Dier in deeze zyne nieuwe en ruime wooning overgebragt hebbende, ('t geen niet zonder vrees, en alle mogelyke voorzorg geſchiedde,) gaf ik het een groote kom met water, nevens een bakje met verſche melk, waar van wy den uitſlag, die zonder vrucht was, reeds gezegd hebben.

Vrydag den 11. October. Van den vyfden October tot deezen dag toe, lieten wy haar aan zich zelve, de melk, het water, enz. van tyd tot tyd ververſchende, om te zien of zy, by nacht of by dag, noch luſt ter ſpysneming zoude krygen; doch wy konden zulks niet beſpeuren. Dien zelfden morgen, door een gezelſchap verzocht wordende om de Slang te mogen zien, gaf ik haar weder een Vogel, die, zeer ſchielyk door haar gebeten zynde, even als de anderen, in veertien minuuten, ſtierf.

Saturdag den 12. des namiddags, om half twee uuren, had ik de eer en het genoegen, dat HUNNE DOORL. HOOGHEDEN, DE HEER PRINS ERFSTADHOUDER, nevens den HEERE HERTOG LODEWYK VAN BRUNSWYK LUNENBURG, &c. &c. &c. de Slang kwamen bezien. Men gaf haar wederom een Vogel, die, zeer bevreesd, weg kroop, en, niet tegenſtaande alle daar toe aangewende moeite, wilde de Slang, die men nu aanhiſte, en by welke men den Vogel bragt, denzelven niet byten, gelyk zy ook toen ten tyde niet ratelde. In den namiddag, om half vyf uuren, met eenig gezelſchap, weder by de Slang koomende, in welkers kiſt ik den Vogel gelaten had, vonden wy den zelven noch onbeſchadigd,

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On this occasion she also showed clearly and continuously her poisonous weapons, the two on each side in front at the top of the mouth, and slightly crooked teeth, and rattled, as in all previous occasions, very strongly. We began to suspect at this strange phenomenon that the snake had possibly hurt her teeth on the ribs of the mouse.

Saturday Oct 5th. Until this time I left the snake in peace, leaving the mouse, and whatever we thought of further, with her, to see **[p. 17]** if she wanted to eat; then all was in vain. In the meanwhile, judging the small box or crate in which she was housed a bit too small, I had another one made of pinewood, which was much bigger, and which one could close at one third by a lowering slide. I thus had the opportunity to bring anything to the snake in this box I wanted without any danger, by means of chasing her with a small stick into the large space which I had blocked off and put the separate glass-covered lid on top. Having moved the animal in this, his new and spacious housing (which did not happen without any fear and with all possible kinds of precaution), I gave it a large bowl of water, as well as a small bowl with fresh milk, of which we have already reported the result, which was futile.

Friday, the 11th of October. From the 5th of October until this day, we left her to herself, refreshing the milk, the water, etc. from time to time, to see if she, at night or during the day, would still get an appetite for food; though we could not see any sign. That same morning, asked by a group to see the snake, I once again gave her a bird, who quickly having been bitten by her, died like the others in fourteen minutes.

Saturday, the 12th in the afternoon, at one thirty, I had the honor and the pleasure, that his illustrious highnesses, the Lord Prince Hereditary Stadhouder, as well as the Lord Duke Lodewyk van Brusnwyk Lunenburg, etc. etc. etc. came to see the snake. One gave her once again a bird, that crawled away very scared, and in spite of all efforts, the snake, which one now incited, and to which one brought the bird, did not want to bite it nor did she then rattle. In the late afternoon, at four thirty, with some people, once again visiting the snake, in whose box I had left the bird, we found it still undamaged, **[p. 18]** although sitting tightly in a corner. Bringing the bird to the snake with a small stick several times, (which I could do as there were holes made in the box) at last the snake bit the bird after having rattled for a little bit, and the bird died of convulsions like the others in seventeen minutes.

After this last experiment, the snake grew weaker and weaker each day, moving less and less.

Wednesday, the 16th I found it completely powerless, now and then, seemingly afraid, she crawled a little.

Thursday, the 17th in the morning at twelve o'clock, touching her with a little stick, she gave but a faint sign of life: shortly thereafter she began spontaneously to rattle, although very faint and as it appeared to me later, only through a convulsing movement. This continued at intervals and opening of the mouth, like on the 29th of the previous month, until in the afternoon at four o'clock I found her dead a short time after.

This snake had been caught, according to received report, in Surinam, at the plantation called the *Vier Kinderen* [Four Children], in Para, at the beginning of the month of April 1765; and so it had, when I received it, already lived without food for five months and three weeks, and afterwards with me another twenty seven days.

In the evening of her death, finding her belly very red and infected, I immediately put her in strong brandy. Through continuous emaciation, was the thickness, mainly on her back, strongly diminished, so that she, lying on her belly, appeared triangular.

On the 10th of January 1766, and so, after having lain in brandy for about three months, I wanted to test to see if the snake had kept her poison. After having pushed to poisonous teeth forward with a tool, I took a fresh live bird, and wounded it with them in the wing joint in **[p. 19]** the late afternoon at five

digd, doch digt in een hoekje zittende. Met een ſtokje den Vogel verſcheiden maalen by de Slang brengende, ('t welk ik doen kon, vermits over al daar toe gaten in de kiſt gemaakt waren,) beet eindelyk de Slang, na een weinig gereteld te hebben, en de Vogel ſtierf, gelyk alle anderen, aan ſtuipen, in zeventien minuuten.

Na deeze laatſte proefneming, verminderde de Slang van dag tot dag in krachten, hoe langer hoe minder zich beweegende.

Woensdag den 16. bevond ik dezelve geheel magteloos; nu en dan, wat benaauwd ſchynende, verkroop zy een weinig.

Donderdag den 17. 's morgens om twaalf uuren, haar met een ſtokje aanraakende, gaf zy maar flaauwe blyken van leeven: kort hier op begon zy, uit zich zelve, te mteelen, doch zeer zacht, en, gelyk my zulks nader bleek, alleen door eene ſtuiptrekkende beweeging. Dit bleef aanhouden met tuſſchenpoozen, en opensparringen des beks, even als op den 29. der voorige maand, tot in den namiddag om vier uuren, vindende ik haar, korten tyd daar na, geſtorven.

Deeze Slang was, volgens ontfangen bericht, in Surinamen gevangen op de Plantagie, genaamd de *Vier Kinderen*, in Para, in het begin van de maand April 1765.; en had dus, toen ik dezelve kreeg, reeds vyf maanden, en drie weeken, zonder voedzel geleefd, en, na dien tyd, by my, noch zeven en twintig dagen.

Den avond van haar overlyden, den buik zeer rood en ontſtoken vindende, deed ik haar terſtond in ſterken brandewyn. Door geduurige vermagering, was de dikte, voornamelyk op den rug, zeer verminderd, zo dat zy, op den buik liggende, zich als driekantig vertoonde.

Op den 10. January 1766., en dus, na omtrent drie maanden in brandewyn gelegen te hebben, wilde ik beproeven of de Slang haar vergif noch behouden had. Na de vergiftigende tanden, door een werktuig, naar vooren gebragt te hebben, nam ik een friſſchen leevenden vogel, en kwetſte deezen daar mede in het vleugel-lid,

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des namiddags om vyf uuren. Zo dra had ik den Vogel niet weêr in zyne kooi gezet, of hy gaf aanſtonds blyken der werking van het fenyn, en bleef onbeweeglyk op éene plaats, dan met toe, en dan wederom met open oogen zitten; tot dat myn knecht, des avonds tuſſchen tien en elf uuren, my kwam zeggen, dat hy hem ſchielyk dood gevonden had.

Alle deeze Vogels, gelyk mede de Muis, zaten ogenblikkelyk na de ontfangene wond zeer ſtil, tot hun de ſtuiptrekkingen meêr en meêr overvielen.

De doode Vogels en de Muis naziende, kon men naauwlyks de beet der tanden ontdekken. Aan twee Vogels, welken ik in het vleugel-lid had zien byten, zag men twee, onbegrypelyk kleine, paars roode vlekjes, doch het lyf was niets opgezwollen; zy ſcheenen ook geen vroeger bederving onderhevig te zyn, vermits ik dezelven, hoewel ſomwylen drie of vier dagen by de Slang laatende, niet meêr, dan gewoonlyk, bedorven vond.

De Slang liet de aan haar voorgeworpen Diertjes na de beet aanſtonds los, en kroop te rug, als verzekerd van haar bedryf. Zy nam doorgaans haare kans zeer wel waar, en ſchoot, zeer kwaadaartig in het byten, met een open geſparden bek, en uitwaards gebogen tanden, op haaren prooi toe; daar na rolde zy zich, in een hoek der kiſt, in een, ratelde meeſt voor af en daar na, dikwyls zeer lang, den ſtaart, in 't midden van haar, even gelyk een opgerold kabeltouw, liggend lighaam, naar om hoog al drillende beweegende.

In de *Philoſophiſche Tranſactions*, (de ſchryver van het *Journal des ſcavans* zegt niet in welk deel) vind men eene uitvoerige Verhandeling, aangaande verſcheide Proefnemingen, welken de Kapitein HALL, in Carolina, weegens de uitwerkzelen der beet van deeze Slangen op verſcheiden dieren, genomen heeft: de beveſtigende overeenkomſt met de onzen, en de zeldzaemheid van zodanige proeven, doen ons overgaan, om dezelven hier kort ter neêr te ſtellen.

C 2 Hy



Hy liet een Ratel-ſlang, van omtrend vier voet, aan een ſtok, in den grond ſtaande, vaſtmaaken. Drie Honden werden door de Slang gebeeten. De eerſte ſtierf in min dan een vierde van een minuut; de tweede, kort daer op gebeeten, in twee uuren; beiden aan ſtuipen. De derde, gebeeten een half uur daar na, onderging de zichtbaare werking van het vergif eerſt drie uuren naderhand, en ſtierf, doch onzeker wanneer. Vier dagen daar na ſtierf een vierde Hond in een halve, en een andere, wat laater, in vier minuuten. Een Kat werd den volgenden dag dood gevonden. Acht dagen na dien tyd zag men een gebeeten Kikvorſch in twee, en een Kuiken van drie maanden in drie minuuten ſterven. Eenigen tuſſchentyd, door gebrek aan voorwerpen, verloopen zynde, kreeg men een gemeene witte Slang, die ſterk, en by de drie voet lang was; men bragt deeze by de Ratel-ſlang, zy beeten elkaâr; doch de gemeene Slang beet de andere ſterk genoeg om die te doen bloeden. Men ſcheidde dezelven van een, en in min dan acht minuuten ſtierf de witte Slang; de andere, daar tegen, hoewel ſterker gebeeten, gaf geen de minſte blyk van ziekte, maar bevond zich zo wel als voorheen. Eindelyk willende zien of de Ratel-ſlang ook zich zelve zou kunnen beſchadigen, ſtelde men alles in 't werk om haar zich zelve te doen byten, dit gelukte, en in minder dan twaalf minuuten gaf zy den geeſt.

De Varkens zoeken de Ratel-, zo wel als alle andere Slangen, en eeten dezelven met zeer veel ſmaak, zonder het minſte letzel. Een Hond at den afgehakten en vermorzelden kop van een deezer Slangen, zonder hinderniſs.

Dikwyls ziet men deeze ſoort van Ratel-ſlangen, wanneer zy noch jong zyn, maar met een, twee of drie ſchellen in den Ratel.

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# BESCHRYVING

DER

SIERLYK GETEEKENDE, EN OVER DEN KOP EN HALS TWEE LANGE ZWARTE STREEPEN HEBBENDE,

SURINAAMSCHE

# RATELSLANG.

*Tab. I.*

DE Lengte van deeze Slang is drie voet, en een halve duim. Het Hoofd is van boven plat, achter naar het lyf breed, en naar vooren ſmal of overal rond. De ronde holle Neuſgaten ſtaan voor aan den bek, wat laager dan de oogen. De Oogen, na den dood, en in *Liquor* ſtaande, zyn paarelkleurig, met een witten oog-appel. In leeven zynde, waren dezelven ſchitterende donker bruin, met een *perpendiculairen* ſtreep, die zich, naar maaten van het licht, verwyderde of vernauwde. De Tong is zwart, buigzaam, van voren in twee-en verdeeld, en ligt onder in den bek in een ſchede beſloten. Het maakzel zo van de vergiftigende, als der andere Tanden, en van het geheel ontlede Hoofd, is volmaakt, by Dr. MEAD, afgebeeld en beſchreven.

Boven op den Kop is deeze Slang ſierlyk geteekend, met zwarte, dwars en ter zyde uitloopende ſtreepen, waar van de twee middelſten boven over den hals, zeer lang en recht door loopen, die daar na, in een omgeboogen punt, op den rug eindigen. Laager naar de borſt of den buik ſtaan noch een of twee ſmalle ſtreepjes van zwarte Schubben. Verder op den rug, en ter zy-

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o'clock. As soon as I had put the bird in his cage again, it immediately showed the effect of the venom, and remained immobile in one spot, opening and then closing it eyes; until my servant in the evening between ten and eleven o'clock came to tell me that he had found it had promptly died.

All these birds, as well as the mouse, immediately sat very still after having received the wound, until they were overcome more and more by convulsions.

Examining the dead birds and the mouse, one could hardly discover any bite of the teeth. On two birds, which I had seen bitten in the wing joint, one saw two incredibly small, purple red spots, though the body was not swollen up; they did not appear to have undergone early decomposition, as I found them, after having left them with the snake sometimes for three to four days, no more decomposed than usual.

The snake let go of the animals thrown at her directly after the bite, and crawled back as if assured of her action. She usually very much took her chance, and rushed forward, very viciously in biting, with mouth wide open, and outwardly bent teeth, towards her prey; afterwards she rolled herself up in a corner of the box, rattled mostly before and after, often for a long while, moving the tail in the middle of her lying body, like a rolled-up cable rope, upwardly in a drilling motion.

In the *Philosophische Transactions* [Philosophical Transactions], (the author of the *Journal des Scavans* does not say in which part) one finds an extensive treatise about several experiments, which Captain Hall, in Carolina, has taken on the effects of the bite of these snakes on various animals; confirming the result with others, and the rarity of such experiments make us write these down here briefly. **[p. 20]**

He let a rattlesnake of about four feet be tied up to a stick in the ground. Three dogs were bitten by the snake. The first one died in less than one fourth of a minute; the second one, bitten shortly after, in two hours, both of convulsions. The third, bitten half an hour after that, underwent the visible effect of the poison only after three hours, and died, though [it is] uncertain when. Four days later, a fourth dog died in half a minute, and another one somewhat later in four minutes. A cat was found dead the following day. Eight days after this time one saw a bitten frog die in two minutes and a three-month-old chick in three minutes. Some time passed, due to lack of subjects, one obtained a common white snake, who was strong and three feet long; one brought this to the rattlesnake, they bit one another; though the common snake bit the other fiercely enough to cause it to bleed. One separated them and in less than eight minutes the white snake died; the other one on the contrary, although bitten more strongly, did not show the least sign of illness, but appeared as healthy as before. Finally wanting to see if the rattlesnake could damage herself, one tried everything possible to make her bite herself, this succeeded and in less than twelve minutes she expired.

The pigs look for the rattlesnake as with all other snakes, and eat these with very much relish with the least harm. A dog ate the chopped off and crushed head of one of these snakes, without obstacle.

One often sees this kind of rattlesnakes when they are still young but with one, two, or three scales in the rattle. **[p. 21]**

## Description of the Beautifully Marked Surinam Rattlesnake, Having Two Long Black Stripes Across the Head and Neck

### Plate I.

The length of this snake is three feet, and one half duim. The head is flat at the top, broad back to the body, and towards the front narrow or round everywhere. The round hollow nostrils are at the front of the mouth, somewhat lower than the eyes. The eyes, after death and standing in Liquor, are pearl colored with a white eyeball. Alive, these were a brilliant dark brown, with a perpendicular stripe, that

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de den buik, vertoonen de Schubben zich als ruitachtige figuuren, die in het midden ligt bruin, en door een zwarten, en een vuilgeelen rand omtrokken zyn. Benedenwaards, naar den buik, zyn de Schubben min of meer asch-kleurig, hier en daar met zwarten gemengd. Maar naar den staart verliest zich deeze ruitachtige teekening; de zwarte Schubben neemen hier een muisvaaler kleur aan, hoewel 'er eenigen onder zyn die men vuil geelen of aschkleurigen kan noemen. Aan het einde van den staert, tot aan den ratel, zyn zy weder muisvaal. De breede Buik- en Staart-schilden zyn in het leeven wit, doch worden geelachtiger na den dood.

De gedaanten der Schubben koomen het naast aan ruitachtige figuuren, die, even als de leyen op de daken, over elkander geschooven liggen, zo dat elke Schubbe met haar punt, of liever tot over de helft, onder de bovenste Schub uit steekt: zy zyn zo geschikt, dat zy den loop der figuuren, waarmede deeze Slang verfierd is, volgen. Boven op het Hoofd der Slang, op den Rug, naar en op den Staart, zyn de Schubben het kleinst, plat en digt op een liggende; verder naar de zyden, of naar den buik, worden zy al grooter en grooter, en vertoonen zich aldaar meer verheven of opwaarts staande. De Schilden of Schubben, welken de onderste deelen der Slang, gelyk de Keel, den Buik, en Staart bedekken, bestaan elk uit een smal stuk of schub, welken over elkander geschooven, de geheele breedte van die deelen bedekken. De Schubben zelve schynen van eene hoornachtige zelfstandigheid te zyn, die zeer dun is.

De Ratel bestaat in deeze Slang, uit zes leden, en is van een zeer dunne hoorn-achtige natuur. Elk lid is los, en inwendig drie dubbeld in elkaar schietende, waar door het een het ander kan vast houden: dus verwonderlyk zyn zy te saamen gesteld.

*See Cover Image*

depending on the light widened or narrowed. The tongue is black, flexible, split in two in the front and lies enclosed in a sheath in the bottom of the mouth. The makeup of the poisonous as well as the other teeth, and of the complete dissected head has been pictured and described perfectly by Dr. Mead.

On top of the head this snake is beautifully marked, with black, diagonal and going off to side stripes of which the two middle ones run over on the neck, very long and straight ending then in a bent point at the back. Lower towards the breast or the belly there are another one or two small narrow stripes of black scales. Farther along the back and on **[p. 22]** the side of the belly, the scales show a diamond-like pattern, that are light brown in the middle, and are outlined by a black, and dirty yellow border. Downward, towards the belly, the scales are more or less ash-colored, mixed here and there with black. But this diamond-like pattern is lost towards the tail; the black scales here take on a pale mouse color, although there are some among them that one can call dirty yellow or ash colored. At the end of the tail, up to the rattle, they are once again pale mousy. The broad belly and tail shells are white in life but become yellowish after death.

The appearance of the scales closely resembles diamond-like figures which, like slates on roofs, are positioned over one another, so that the point of each scale, or rather about half [the scale], sticks out from under the scale above it; they are arranged in such a way that they follow the course of the designs with which the snake is marked. On top of the head of the snake, on the back, towards and on the tail, the scales are the smallest; flat and lying closely together; farther towards the sides; or towards the belly, they become bigger and bigger and display themselves more elevated or standing upwards. The shields or scales which cover the bottom parts of the snake, like the throat, the belly and the tail, each consist of a narrow piece of scale, which cover positioned over each other the whole width of these parts. The scales themselves appear to be of a hornlike substance which is very thin.

The rattle in this snake consists of six parts and is of a very thin hornlike nature. Each part is loose, and in threefold joined together internally by which one can be held by the other; so it is remarkable how they are put together.

[1] [Footnote (a) was spread across pp. 3 and 4]
**[p. 3]**
(a) [Kalm] Der Konigl. Schwedischen Academie der Wissenschaften. Tom XIV. P. 316. Tom. XV. p. 54. 189.
R. Mead. A Mechanical Account of Poisons. Lond. 1747.
P. Fermin. Hist. Nat. de la Hollande Equinoxiale. Amst. 1765.
T. Pistorius. Besch. Van Surinamen. Amst. 1763.
F. Watson. De Dierlyke Wereld. Amst. 1761.
R. Bradley. Wysgerige Verhandeling. Amst. 1744. Tab. IX. Fig. I.
Journal des Scavans, Septembre 1764. No. 10. P. 513. Experiences faites par le Captaine Hall, sur les effects du poison du Serpent a sonnettes. Extraites des Transactions Philosophiques.
E . Tyson. Phil. Transact. Ang. Vol. XIII. No. 144. P. 25. Idem in Acta Erudit. 1684. p. 138. Tab. V.
**[p. 4]**
Catesby. Nat. Hist. of Carolina. Vol. II. p. 41. Tab. 41. 42
A. Seba. Thesaurus Vol. II. Tab. 45. fig. 4. Tab. 95. fig. 1. 2. 3. Tab. 96. Fig. I.
Houttuyn. Nat. Hist. der Dieren enz. Amst. 1764 &c. Vol. 1. Pars VI. pag. 290 Tab. 45. fig. I
W. Schoutten. Oost-Indische Voyagie. Amst. 1676. III. Boek. p. 53.
Charlevoix. Hist. de la nouvelle France. Tom. V. p. 233.
Lausons. Natural History of North Carolina. p. 129.
Linné. Syst. Nat. Edit. X. p. 214.
Gronovius. Mus. Icht. Tom. II. p. 70. Id. Zoophyl. Fac. I. p. 26.

[2] [Footnotes from p. 4]
(b) See here above
(c) Tom. X. p. 98

[3] [Footnote from p. 5]
(d) See for this in the list of authors

[4] [Footnotes from p. 6]
(e) Hist. Gen. des Voyages. Tom II. Edit. De la Haye
(f) ‘t Eyland Ceylon in zyn binnenste &c. Amst. 1693. 8vo.
(g) Reize nach Oostindie und China. Rostock 1765.

[5] [Footnotes from p. 11]
(h) Syst. Natura, Edit Duodecima, reformata. Tom I. Holm. 1766
(i) Tab. XLV. fig. 4. & Tab. XCVI. fig. I. (k) Tab. XCV.

[6] [Footnote from p. 12]
(e) Tom. II. Tab. 45. Fig. 4.

# Description of the Very Rare Long-Tailed, Coarse-Scaled Snake-Lizard Possibly Occurring in Africa? as Well as of the Rare African Smooth-Scaled Worm-Lizard of the Cape of Good Hope Both Being Kept in the Museum of His Most Illustrious Highness, The Prince of Orange and Nassau, Hereditary Stadhouder, Hereditary Governor, Hereditary Captain General and Admiral of the United Netherlands, etc. etc. etc.

**Described and published by**

**A. Vosmaer**

**Director of the Royal Nature and Art Cabinets and Zoos, Member of the Imperial Academy, and Correspondent of the Royal Academy of Sciences in Paris, Member of the Zeeland Society of Sciences of Vlissingen, and the Dutch Society in Haarlem.**

**In Amsterdam,**

**By Pieter Meijer,**
**MDCCLXXIV [1774].**

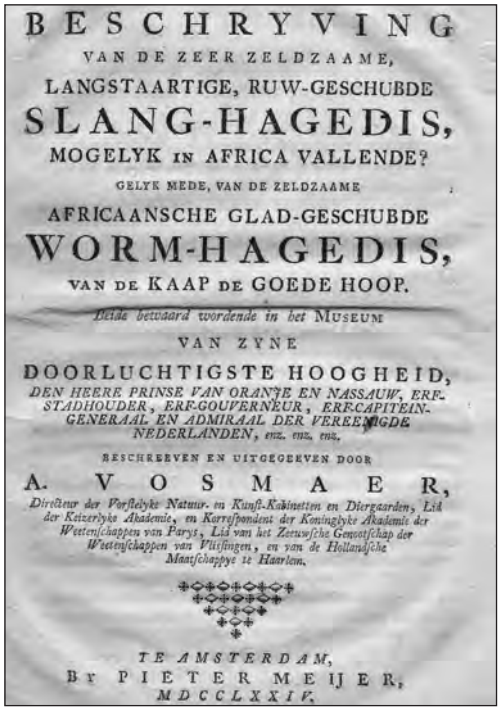
**[p. 2 is blank]**

**[p. 3]**

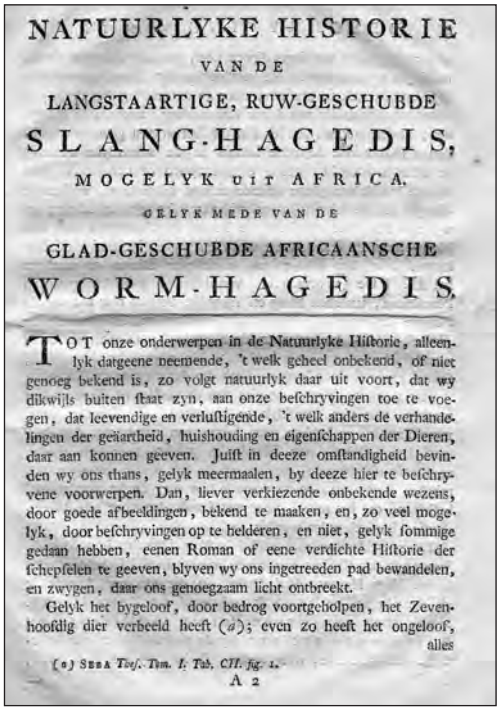
## Natural History of the Long-Tailed, Coarse-Scaled Snake-Lizard Possibly from Africa, as Well as of the Smooth-Scaled African Worm-Lizard

Taking as our subjects in natural history only those that are completely unknown or not sufficiently known it naturally follows that we often are not able to add to our descriptions that which living and animated ones could provide about the nature, home, and characteristics of the animals. At present we find ourselves exactly in this circumstance, again, in describing these subjects here. So, preferring to choose unknown creatures and making them well known through good pictures and illustrating as best as possible through descriptions, and not like some others have done to write a novel or a condensed history of the creatures, we stay the course and remain silent where we lack sufficient illumination.

Just as superstition aided by deceit has pictured the sevenheaded animal; so has disbelief **[p. 4]** seized upon anything that could only serve to refute the divine revelations, the curse of the snake to crawl footless on its belly, trying to fight against the discovery of such subjects as those in this treatise, pretending that snakes with feet had been found. Then too often having discovered that their specific knowledge of the natural beings, not observing any characteristics or features, knew of no feature which differentiates the snakes from the lizards. They are there however, and we owe this enlightened knowledge, to Professor P. Camper, from whom we are awaiting some nice discoveries about the hearing of several animals. The most important differing characteristics and features between snake and lizard consist herein that the snakes have ears and ear holes covered and that, in contrast, the lizards have those, although very small, completely devoid of any cover, free and open. The eyes of the lizards also close themselves through lids, though those of the snakes are open.



BESCHRYVING
VAN DE ZEER ZELDZAAME,
LANGSTAARTIGE, RUW-GESCHUBDE
SLANG-HAGEDIS,
MOGELYK IN AFRICA VALLENDE?
GELYK MEDE, VAN DE ZELDZAAME
AFRICAANSCHE GLAD-GESCHUBDE
WORM-HAGEDIS,
VAN DE KAAP DE GOEDE HOOP.
*Beide bewaard wordende in het* MUSEUM
VAN ZYNE
DOORLUCHTIGSTE HOOGHEID,
*DEN HEERE PRINSE VAN ORANJE EN NASSAUW, ERF-STADHOUDER, ERF-GOUVERNEUR, ERF-CAPITEIN-GENERAAL EN ADMIRAAL DER VEREENIGDE NEDERLANDEN, enz. enz. enz.*
BESCHREEVEN EN UITGEGEEVEN DOOR
A. VOSMAER,
*Directeur der Vorstelyke Natuur- en Kunst-Kabinetten en Diergaarden, Lid der Keizerlyke Akademie, en Korrespondent der Koninglyke Akademie der Wetenschappen van Parys, Lid van het Zeeuwsche Genootschap der Wetenschappen van Vlissingen, en van de Hollandsche Maatschappye te Haarlem.*
*TE AMSTERDAM,*
By PIETER MEIJER,
*MDCCLXXIV.*



NATUURLYKE HISTORIE
VAN DE
LANGSTAARTIGE, RUW-GESCHUBDE
SLANG-HAGEDIS,
MOGELYK uit AFRICA.
GELYK MEDE VAN DE
GLAD-GESCHUBDE AFRICAANSCHE
WORM-HAGEDIS.

TOT onze onderwerpen in de Natuurlyke Historie, alleenlyk datgeene neemende, 't welk geheel onbekend, of niet genoeg bekend is, zo volgt natuurlyk daar uit voort, dat wy dikwijls buiten staat zyn, aan onze beschryvingen toe te voegen, dat leevendige en verluftigende, 't welk anders de verhandelingen der geaartheid, huishouding en eigenschappen der Dieren, daar aan konnen geeven. Juist in deeze omstandigheid bevinden wy ons thans, gelyk meermaalen, by deeze hier te beschryvene voorwerpen. Dan, liever verkiezende onbekende wezens, door goede afbeeldingen, bekend te maaken, en, zo veel mogelyk, door beschryvingen op te helderen, en niet, gelyk sommige gedaan hebben, eenen Roman of eene verdichte Historie der schepselen te geeven, blyven wy ons ingetreeden pad bewandelen, en zwygen, daar ons genoegzaam licht ontbreekt.

Gelyk het bygeloof, door bedrog voortgeholpen, het Zevenhoofdig dier verbeeld heeft (*d*); even zo heeft het ongeloof, alles

(*b*) SEBA *Thef. Tom. I. Tab. CII. fig. 1.*

A 2

The use which this animal can make of the feet or fins cannot be easily understood. They appear extremely weak and have no evidence of nails at their ends. Completely covered with small scales, being very thin and with ends pointed they could not be of the least use in the water, and one could, I think, conclude from this that it can be considered more of a land than a water animal.

This rare coarse-scaled snake-lizard was transferred many years ago from the cabinet of an important enthusiast [collector] Mr. Van Hoey, Med. Doctor into mine which I owned and which I later sold to his illustrious highness the Lord Prince of Orange and Nassau, etc. etc. etc. at the acceptance of my employment. I cannot recall having seen **[p. 5]** its equal in any other cabinet. A. Seba, however, also appears to have been an owner of it (*b)*, though what he says about it, that they could be found in multitudes at the Cape at the Table Bay in the river between the cliffs, appears very doubtful to me, and seems to me more applicable to the worm-lizard which we will describe soon, for the reason that I have received the one from the Cape but never the snake-lizard as much as I have written for it, so that the report about this to Mr. Seba probably will have happened incorrectedly.

It appears to me however that there is some difference in the length and the inflexibility of the tail and in the scales of the belly and color between ours and that of Seba.

Sir Linnée (*c*) has placed it rightly with the lizards under the name of *Anguina* and added an addendum about its appearance in his revised *Systema*, which I reported to him some years ago in a letter, though I, at that time, erroneously attributed nails to the feet of this animal, wherein I had been misled by the pointed overhanging scales that cover the small feet.

Mr. Houttuin (*d*) calls it worm-lizard, which name however seems more appropriate to me as belonging to the next species.

**[p. 6]**

**Description of the Long-Tailed Coarse-Scaled Snake-Lizard Plate I**

Its length is twenty duim and the thickness corresponding to the added picture here. The color is on the whole ash gray, on the sides towards the tail a bit darker. The belly somewhat whiter.

alles aangrypende wat flegts dienen kon, om de Godlyke Openbaaringen te ontzenuwen, de vervloeking der *Slange*, om voetenloos op den buik te kruipen, door de ontdekking van dergelyke voorwerpen, als die van deeze verhandeling, trachten te beſtryden; voorgeevende, dat 'er *Slangen* met voeten gevonden wierden. Dan hunne bepaalde kennis in de natuurlyke wezens, te dikwijls ontdekt, geene eigenſchappen of kenmerken gade ſlaande, wiſt van geene onderſcheidings kenmerken, welken de *Slangen* van de *Hagedisſen* onderſcheidt. Zy zyn 'er echter; en wy zyn derzelver opgehelderde kennis verſchuldigd, aan den Hoogleeraar P. CAMPER, van wien wy eenige fraaije ontdekkingen over het gehoor van verſcheide Dieren te wachten hebben. De voornaamſte verſchillende eigenſchappen en kenmerken, tuſſchen *Slang* en *Hagedis*, beſtaan hier in; dat de *Slangen* de ooren of gehoorgaaten bedekt, en, integendeel, de *Hagedisſen* die, hoewel zeer kleen, geheel ontbloot van eenig overdekſel, vry en open hebben. De oogen der *Hagedisſen*, ſluiten zig ook door leeden, doch die der *Slangen* zyn open.

Het gebruik, 't geen dit dier van de voetjes of vinnetjes kan maaken, valt niet gemaklyk te begrypen. Zy ſchynen uitermaaten zwak, en hebben geen bewys van nagels aan derzelver uitëinden. Geheel met ſchubbetjes gedekt, zeer dun zynde, en puntig uitloopende, kunnen zy in het water van geen den minſten dienſt zyn, en men zoude hier uit, dunkt my, mogen beſluiten, dat het meer, voor een Land- dan voor een Waterdiertje, kan gehouden worden.

Deeze zeldzaame *ruw-geſchubde Slang-Hagedis*, is voor veele Jaaren uit het Cabinet van eenen voornaamen Liefhebber, den Heere VAN HOEY, *Med. Doctor*, in dat van my, 't welk ik als doen bezat, en 't geen ik naderhand aan ZYNE DOORL. HOOGHEID DEN HEERE PRINSE VAN ORANJE EN NASSAUW ETC. ETC. ETC. by de aanvaarding myner bediedinge verkogt hebbe, overgegaan. Ik kan my niet herinneren, de



de weërgade daarvan in eenig Cabinet gezien te hebben. A. SEBA echter ſchijnt mede een bezitter daarvan geweeſt te zyn (*b*), doch 't geen hy van dezelve zegt, dat zy aan de Kaap by de Tafelbaay in de rivier tuſſchen de klippen in menigte zouden te vinden zyn, komt my twyffelagtig voor, en ſchynt my meerder toepaſſelyk te weezen op de *Worm-Hagedis*, die wy zo ſtraks beſchryven zullen, om reeden, dat ik die van de Kaap hebbe ontfangen, doch de *Slang-Hagedis* nooit, hoe zeer ik daarom gefcheeven hebbe; zo dat het bericht, dien aangaande aan den Heer SEBA gedaan, denkelyk, verkeerd zal geſchied zyn.

Het ſchynt my echter toe, dat 'er in de lengte en 't onbuigzaame van den ſtaart, van die van SEBA, en in de ſchubben van den buik en kleur, eenig verſchil is met de onze.

De Ridder LINNÉE (*c*), heeft hem, onder de benoeming van *Anguina*, met recht onder de *Hagedisſen* geplaatſt, en een byvoegſel omtrent zyne gedaante, in zyn vernieuwd *Syſtema*, gegeeven, 't geen ik hem over eenige Jaaren in eenen brief mededeelde; doch ik heb my als toen vergiſt, in dit diertje nagels aan de voetjes toe te ſchryven, waar in ik misleid geweeſt ben, door de puntige overſteekende ſchubbetjes, die de voetjes bedekken.

De Heer HOUTTUIN (*d*) noemt hem *Worm-Hagedis*, welke naam my echter eigenlyker toeſchynt aan de volgende ſoort te behooren.

(*b*) *Tom. II. Tab. 68 fig. 7 & 8.*
(*c*) *Edit. Duodecimo reformata. Tom. I pag. 371.*
(*d*) *Natuurlyke Hiſtorie der Dieren enz., I Deel 6. Stuk pag. 186.*

A 3 B E-



# BESCHRYVING VAN DE LANGSTAARTIGE, RUW-GESCHUBDE SLANG-HAGEDIS.

*Tab. I.*

DE lengte van dezelve is twintig duim, en de dikte overeenkomſtig met de hier by gevoegde afbeelding.

De kleur is, over het geheel genomen, aſchergrauw, op de zyden naar den ſtaart een weinig donkerder. De buik wat witter.

De langwerpige ſchubben liggen in taamelyk rechte reijen, byna gelyk de leijen op de daken der huizen; doch op den buik nog rechter, en niet, gelyk by die van SEBA, ruitsgewys over elkander geſchooven.

Het hoofd loopt met het lichaam egaal uit. Het ſchynt my toe, dat zich vooraan, ter zyden van den bek, kleene neusgaren vertoonen. De tong . . . . De tanden . . . zyn, door het ſluiten van den bek, (en niet te openen zonder gevaar van het voorwerp te ſchenden) niet zigtbaar: Het ſchynt echter, dat het, leevend, de bek wyd kan openen. Dit diertje heeft oogleeden, die herzelve, als andere dieren, kan ſluiten: de ooren of gehoor-gaten ſtaan kort achter den bek, dwars, zyn meerder langwerpig, dan rond.

De vier kleine voetjes zyn genoegzaam rond, mede, gelyk het lyf, tot aan het uitëinde, rondom met ſchubbetjes bedekt, zonder het minſte bewys van nageltjes aan derzelver uitëinde.

De ſtaart loopt dun en draadswyze uit, en is, ten einde toe, met gemelde ſchubbetjes gedekt. Dicht by de achtervoetjes vertoont zich den *anus*.

N A-



# NATUURLYKE HISTORIE VAN DE AFRICAANSCHE GLAD-GESCHUBDE WORM-HAGEDIS.

DIT diertje, niet zeer gemeen in de Cabinetten der Liefhebbers voorkomende, is ons, onder anderen, voor eenige Jaaren van de Kaap de Goede Hoop, door den overleeden Heer Gouverneur TULBACH, toegezonden

Verſcheide zo vroege als laatere ſchryvers (*a*), hebben het zelve aangehaald, doch tot nog toe met geene goede afbeelding opgehelderd.

De Ouden hebben 'er vry duiſter van geſprooken, de ſtaart te lang en te dun uitloopende afgebeeld, hun te groot gemaakt, en de ſchaadelyke eigenſchap gegeeven, als of hunne beete vergiftig was, en verrotting in de wond zoude brengen. Dit is echter niet waarſchynlyk, de kleenheid en het aanzien deezer diertjes, in aanmerking genomen; want verſcheiden die ik gezien hebbe, waren alle zeer kleen. Men kent daarenboven het algemeen en kwaad gerucht, waarin zelfs onze gemeene Inlandſche *Land-Hagedisſen*, als vergiftig, nog zyn; hoewel my het tegendeel, door eigene ondervinding, bekend is. De Heer LINNÉE, beeft

(*a*) IMPERATUS. *Hiſt. Naturalis pag. 917. Cecilia major.*
ALDROVANDUS. *Quad. digit. vivip. pag. 638. Lacerta Chalcidica.*
COLUMNA. *Expr. I. pag. 35. tab. 36. Lacerta Chalcidica.*
RAJ. QUAD. *pag. 272. ut supra.*
GRONOVIUS. *Zoophylacii pag. 11. N°. 43. Scincus.*
LINNÉE. *Syſt. Nat. pag. 369. Chalcidis.*
HOUTTUIN. *Natuurlyke Hiſtorie der Dieren, I. Deel 6. Stuk Vaks. 186.*

The elongated scales lie in fairly straight rows almost like the slates on the roofs of houses though on the belly even straighter and not like that of Seba diamond-wise laid upon one another.

The head runs out even with the body. It appears to me that in the front, on the sides of the mouth, small nostrils show. The tongue….the teeth… are, through the closing of the mouth (and not to be opened without danger of damaging the object), not visible: It appears, however, that alive it can open the mouth wide. This small animal has eyelids, which it, like other animals, can close: the ears or ear holes are close behind the mouth, transverse, and are more elongated than round.

The four small feet are sufficiently round, [and] also like the body are covered all around up to the end with small scales [and] without the least evidence of nails at their ends.

The tail tapers thin and thread-like and is at the end covered with the above-mentioned scales. Close to the hind feet the anus shows itself.

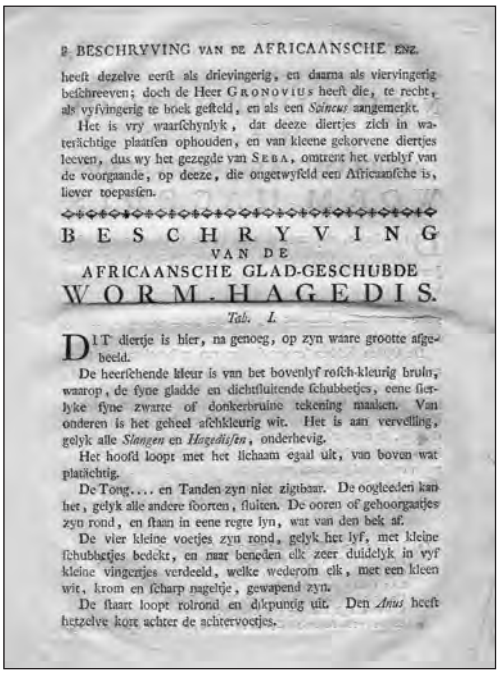
**[p. 7]**

## Natural History of the African Smooth-Scaled Worm-Lizard

This small animal, not commonly occurring in the cabinets of the enthusiasts [collectors], has been sent to us, among others, some years ago from the Cape of Good Hope by the late Sir Governor Tulbach.

Several early as well as later authors (*a*) have cited it, though until now not illustrated it with any good picture.

The ancients talked about them fairly obscurely, picturing the tail too long and tapering too thinly, making them too big and giving them the harmful characteristic of their bite being poisonous and causing putrefaction in the wound. This is however not probable taking into account the small size and appearance of these small animals, because several that have I seen were all very small. Moreover one knows the general and malicious rumor in which even our common indigenous land lizards are poisonous even though the contrary is known to me through personal experience. Mr. Linnée has first described it as three-fingered **[p. 8]** and then as four-fingered,



2 BESCHRYVING VAN DE AFRICAANSCHE ENZ.

heeft dezelve eerst als drievingerig, en daarna als viervingerig beschreeven; doch de Heer GRONOVIUS heeft die, te recht, als vyfvingerig te boek gesteld, en als een *Scincus* aangemerkt.

Het is vry waarschynlyk, dat deeze diertjes zich in waterachtige plaatsen ophouden, en van kleene gekorvene diertjes leeven, dus wy het gezegde van SEBA, omtrent het verblyf van de voorgaande, op deeze, die ongetwyfeld een Africaansche is, liever toepassen.

BESCHRYVING
VAN DE
AFRICAANSCHE GLAD-GESCHUBDE
WORM-HAGEDIS.

*Tab. I.*

DIT diertje is hier, na genoeg, op zyn waare grootte afgebeeld.

De heerschende kleur is van het bovenlyf rosch-kleurig bruin, waarop, de fyne gladde en dichtsluitende schubbetjes, eene sierlyke fyne zwarte of donkerbruine tekening maaken. Van onderen is het geheel afschkleurig wit. Het is aan vervelling, gelyk alle *Slangen* en *Hagedissen*, onderhevig.

Het hoofd loopt met het lichaam egaal uit, van boven wat platachtig.

De Tong.... en Tanden zyn niet zigtbaar. De oogleden kan het, gelyk alle andere soorten, sluiten. De ooren of gehoorgaatjes zyn rond, en staan in eene regte lyn, wat van den bek af.

De vier kleine voetjes zyn rond, gelyk het lyf, met kleine schubbetjes bedekt, en naar beneden elk zeer duidelyk in vyf kleine vingertjes verdeeld, welke wederom elk, met een kleen wit, krom en scharp nageltje, gewapend zyn.

De staart loopt rolrond en dikpuntig uit. Den *Anus* heeft hetzelve kort achter de achtervoetjes.

though Mr. Gronovius has rightly recorded it as five-fingered and classified it as a *Scincus*.

It is fairly probable that these small animals dwell in watery places and live on small insects so we preferred to apply the mention of Seba about the home of the previous one to this one, which undoubtedly is African.

## Description of the African Smooth-Scaled Worm-Lizard Plate I

This small animal is pictured here almost at its true size.

The dominant color on the upper body is reddish-colored brown on which the fine, smooth and close-fitting scales make a graceful fine black or dark brown design. Underneath, it is entirely ash-colored white. Like all snakes and lizards it is subject to sloughing.

The head runs even with the body, somewhat flat at the top.

The tongue…. and teeth are not visible. Like all other species, it can close the eyelids. The ears or ear holes are round and are in a straight line somewhat away from the mouth.

The four small feet are round, like the body covered with small scales and each distally very clearly divided into five small fingers each in turn armed with a small white, curved and sharp nail.

The tail ends curved and thick and pointed. It has the anus closely behind the hind feet.

[1] [Footnote on p. 3]
(a) Seba Thes. I Tab. CII. fig. I.

[2] [Footnotes on p. 5]
(b) Tom. II. Tab. 68. fig. 7 & 8.
(c) Edit. Duods reformata. Tom. I. pag. 371.
(d) Natuurlyke Historie der Dieren enz, I Deel 6. Stuk 6 pag. 186.

[3] [Footnotes on p. 7]
(a) Imperatus. Hist. Naturalis pag. 917. *Caecilia major*.
Aldro van Dus. Quad. digit. vivip. pag. 638. *Lacerta Chalcidica*.
Columna. Expr. I. pag. 35. tab. 36. *Lacerta Chalcidica*.
Raj. Quad. pag. 272. utsupra.
Gronovius. Zoophylacii pag. II. No. 43. *Scincus*.
Linnée. Syst. Nat. pag. 369. *Chalcidis*.
Houttuin. Natuurlijke Historie der Dieren, I, Deel 6. Stuk bladz. 184

**[p. 2 is blank]**

**[p. 3]**

**Natural History of the Brown-Back**

# Description of Two Different and for the Time Being Very Little Known Flat-Tail Snakes, Being the Brown-Back from Mexico, and the Ringed from the Indian Seas. Both, with Another Different Kind of Species of the Latter Being Kept in the Museum of His Most Illustrious Highness, The Prince of Orange and Nassau, Hereditary Stadhouder, Hereditary Governor, Hereditary Captain General and Admiral of the United Netherlands, etc. etc. etc.

**Described and published by**

**A. VOSMAER,**

**Director of the Royal Nature and Art Cabinets and Zoos, member of the Imperial Academy, and Correspondent of the Royal Academy of Sciences in Paris, Member of the Zeeland Society of Sciences of Vlissingen, and the Dutch Society in Haarlem.**

**In Amsterdam,**

**By Pieter Meijer,**
**MDCCLXXIV [1774].**

## Flat-Tail Snake from Mexico

This rare object I discovered, among other fine things, when, several years ago, at the founding of the cabinet, the collection of Mr. de Lassaraz was bought by her late royal highness, Glorious Memory, for the cabinet. Until now I have not found its equal in any other cabinet. Only Seba (*a*) appears to also have had it; he says it belongs in Mexico, and describes it under the name *Nixboa Quanquecholla*, or rare snake of Mexico. This is all, except for the color description, that we can find of it, and the image is very poor.

Mr. Linnée has not included this flat tail in his classification, which is odd, even though he knew one of a different species of it, of which we will speak later, very well and assigned it a place.

The resemblance, which can be found between this and the next one, in the flatness of the tail, [and] the lack of belly scales, makes me think that this is of the same kind and so will be a sea-animal or sea-snake while through the lack of fins, it differs itself enough from sea lampreys and eels. **[p. 4]**

# BESCHRYVING

VAN TWEE VERSCHILLENDE EN VOOR ALS NOG ZEER WEINIG BEKENDE

# PLATSTAART SLANGEN,

ZYNDE DE BRUIN-RUG UIT MEXICO, EN DE GERINGDE UIT DE INDISCHE ZEEN.

*Beide, met nog eene verſchillende ſoorte van de laatſtgemelde, bewaard wordende in het* MUSEUM

VAN ZYNE

DOORLUCHTIGSTE HOOGHEID,

*DEN HEERE PRINSE VAN ORANJE EN NASSAUW, ERF-STADHOUDER, ERF-GOUVERNEUR, ERF-CAPITEIN-GENERAAL EN ADMIRAAL DER VEREENIGDE NEDERLANDEN, enz. enz. enz.*

BESCHREEVEN EN UITGEGEEVEN DOOR

A. VOSMAER,

*Directeur der Vorſtelyke Natuur- en Kunſt-Kabinetten en Diergaarden, Lid der Keizerlyke Akademie, en Korreſpondent der Koninglyke Akademie der Weetenſchappen van Paryſ, Lid van het Zeeuwſche Genootſchap der Weetenſchappen van Vliſſingen, en van de Hollandſche Maatſchappye te Haarlem.*

*TE AMSTERDAM,*

By PIETER MEIJER,

*MDCCLXXIV.*

# NATUURLYKE HISTORIE

VAN DE

## BRUIN-RUG

# PLATSTAART SLANG,

*Uit MEXICO.*

DIT zeldzaam voorwerp ontdekte ik, onder andere fraaije zaaken, toen, voor verſcheide Jaaren, by de oprechting van het Kabinet, door wylen HAARE KONINGLYKE HOOGHEID, Glorieuſer Gedachtenisſe, de Verzameling van den Heer de LASSARAZ, voor het Cabinet gekogt wierd. Tot nog toe heb ik geene weêrgade daarvan in eenig Cabinet gevonden. Alleen SEBA (*a*) ſchynt het mede gehad te hebben; hy zegt dat het te *Mexico* te huis hoort, en beſchryft het onder de benoeming van *Nixboa Quanquecholla*, of zeldzaame Slang van *Mexico*, met eenen breeden ſtaart. Dit is het alles, behalven de kleur-beſchryving, wat wy daarvan vinden, en de afbeelding is zeer gebrekkig.

De Heer LINNÉE, hetgeen vreemd is, heeft deeze Platſtaart in zyne Rangſchikking niet overgenomen, daar hy nochtans die, waarvan wy ſtraks ſpreeken zullen, of eene verſchillende ſoort derzelve, zeer wel gekend en plaats gegeeven heeft.

De overeenkomst, welke tusſchen deeze en de volgende te vinden is, zo in de platheid der ſtaart, het ontbreeken der buikſchilden, als anders, doet my denken, dat deeze van denzelfden aart, en dus een Zee-dier of Zee-Slang, zyn zal, terwyl dezelve zig, door het gebrek der vinnen, genoeg van Zee-lampereijen en Aalen, onderſcheidt. BE-

(*a*) *Theſ. Tom. II. Tab. LXXVII. Fig. 2. of liever 1. als verkeerd gemerkt zynde.*





# BESCHRYVING

VAN DE

## BRUIN-RUG

# PLATSTAART SLANG.

*Tab. I I.*

HET dier, hier op zyne waare grootte afgebeeld zynde, behoeft desaangaande geene nadere bepaaling.

Over het hoofd en langs den geheelen rug loopt een breede donkerbruine band, zynde verder licht- of ſlaauw-geel. Ter zyde, naby het beginſel van en op den ſtaart, vertoonen zig eenige bruine vlakken.

Vooraan op den bovenbek vertoonen zig twee wat van een ſtaande ronde gaatjes, die mogelyk de neusgaten zullen zyn. De kop is van boven gedekt met kleene ſchildplaatjes, even als ſommige Slangen. De ronde oogen ſchynen blaauwachtig, in 't midden een wit ſtipje hebbende, 'er zyn geene oogleeden, noch zichtbaare gehoorgaten.

Het geheele lyf is van onderen, als op den rug, gelyk mede op zyde en den ſtaart, met zeer kleene plat- en dichtſluitende ſchobbetjes bezet.

Men beſpeurt geen het allerminſte bewys van vinnen. Het lyf ſchynt rondachtig, naar het ſtaart-einde, ter zyden, wat meêr plat gedrukt.

De ſtaart is omtrent een duim lang, ter zyden geheel en al dun en plat. Het heeft onder aan den buik, noch aan het ſtaart-einde, geene de minſte tekens van ſmalle buikſchubben, die anders aan de *Slangen* eigen zyn. NA-



# NATUURLYKE HISTORIE

VAN DE

## GERINGDE

# PLATSTAART SLANG,

UIT DE

## INDISCHE ZEËN.

DIT Zeldzaam, en zo veel ik weet, nog niet beſchreeven *Platſtaart Slangetje*, is, tegelyk met het voorige, uit de Cabinet-verzameling van den Heer DE LASSARAZ, zonder dat men weet, van waar het afkomſtig is. In deeze onkunde zouden wy mogelyk nog lang gebleeven zyn; dan verſcheide bezoeken, waarmede de beroemde Engelſche Natuurkundige, de Heer BANKS, zo bekend door zyne *Reyze rondom de Weereld*, by zyn verblyf alhier, my vereerde, deed my daarvan eenige nadere kennis verkrygen. Deeze, by ons zeldzaame voorwerpen, onder anderen, aan Hem vertoonende, verzekerde hy my, drie onderſcheide ſoorten van dezelve, en in eene groote meenigte gevonden te hebben, op de volgende plaatſen, naamelyk: in de ſtille Zee, langs de Ooſt-kuſt van Nieuw-Holland, van 20. tot 10. graaden Zuiderbreedte. Verder in de Zee, tusſchen Nieuw-Guinée en het Noordelyk gedeelte van Nieuw-Holland, tot voorby het Zuidelyk gedeelte van het Eyland Timor. Zyn Wel Ed. verhaalde my nog, dat die zelfde ſoorten van *Slangen* mede gezien zyn in de Zeën en op de Kuſten van China. Met mooy weêr in ſtille zee, zagen

### Description of the Brown-Back Flat-Tail Snake Plate II

The animal, being depicted here at his true size, does in this respect not need closer determination.

Across the head and along the entire back runs a broad dark-brown band, being distally light or faint yellow. On the side, near the beginning of and on the tail a few brown areas show themselves.

The front part of the upper jaw exhibits two round holes which are possibly the nostrils. The head is covered on top with small shield plates, like with some other snakes. The round eyes appear bluish, having a small white dot in the middle, there are no eye lids nor visible ear holes.

The whole underside of the body is, as well as on the back, the side, and the tail, covered with very small flat and tightly meeting scales.

One does not detect the least evidence of fins. The body appears roundish, somewhat more flattened toward the tail end, on the sides.

The tail is about one duim long, completely thin and flat along the sides. It does not show any signs of small belly scales under the belly nor on the end of the tail which are otherwise common to snakes. **[p. 5]**

### Natural History of the Ringed Flat-Tail Snake from the Indian Seas

This rare, and as far as I know, not yet described small flat-tail snake comes, along with the previous, from the cabinet collection of Mr. De Lassaraz, without anyone knowing where it originated. We would possibly be in the dark for a very long time, had it not been for the famous English natural historian, Mr. Banks honoring me with several visits during his stay here, so well known from his *Travels around the world*, who provided me with some more knowledge. Showing him these, for us rare objects, among others, he assured me that he had found three different species of it, and in a large quantity, in the following locations: in the Pacific Sea, along the east coast of New Holland, from 20 to 10 degrees southern latitude. Furthermore in the sea, between New Guinea and the northern part of New Holland, until beyond the southern part of the Island of Timor. The honorable [gentleman] also told me that the same sorts of snakes were also observed in the seas and on the coasts of China. In fine weather in quiet sea, they saw **[p. 6]** them swimming, along the surface of the water, and also often again diving down to the bottom.

Dampier (*b*) as well already speaks in the travels by him to the Southland, of several kinds of water snakes, which he saw at the coast of New Holland; although the description he gives, and the change of the colors which especially water animals undergo in the liquor in which they are sent to us; cannot give me any certainty to whether these are the same species; although Mr. Banks who spoke to me as a natural historian and eyewitness assured me of this.

This is all which we can say about this rare creature. But not long ago, I obtained a third very markedly different one, by exchanging for duplicates, (a way through which I have been able to add thousands of fine rarities to the cabinet without any cost). This variety of the two previous ones, is exactly that of which Sir Linnée (*c*), has given the very first description and image, under the name *Laticaudatus*, in the Cabinet of the King of Sweden. Then just this one, of which we are now speaking, how much at first glance it seems the same as the previously described species, is completely different.

With the previous two different species it has been said, that those do not have, unlike other common snakes, any belly or tail shells or scales; this one on the contrary has these obviously, which presents a rare difference. **[p. 7]**

The other differences which appear in this one, and through which this one may be differentiated from the previously described, are the following:

The black bands are broader, are more widely separated and do not all go around into one [are incomplete]. The first three bands run from and near the head, on the side of the lower jaw together as one line. All the bands are black. The color on the body is lead-colored blue, under the belly yellow-white, to which

6 BESCHRYVING VAN DE

zy die zwemmen, gelyk met de oppervlakte van het water, en ook dikwyls weder nederwaards naar den grond duiken.

DAMPIER (*b*) ſpreekt in de Reizen, door hem naar het Zuidland gedaan, ook reeds van verſcheide ſoorten van *Water-ſlangen*, die hy by de Kuſt van Nieuw-Holland gezien heeft; doch de beſchryving die hy daarvan geeft, en de verandering der kleuren, welke, vooral de Water-dieren, in de *Liquor* ondergaan, waarin die ons overgezonden worden, kunnen my niet geene zekerheid doen bepaalen, of het dezelfde ſoorten zyn; hoewel de Heer BANKS, die daarvan by my als Natuurkundige en ooggetuige ſprak, zulks verzekerde.

Dit is het al, 't welk wy omtrent dit zeldzaam ſchepſel zeggen konnen. Maar niet lang geleeden, heb ik nog eene derde zeer merkelyk daarvan verſchillende gekreegen, door inruiling, voor dubbelde zaaken (eene handelwyze, waardoor ik duizenden van fraaije Zeldzaamheden, aan het Cabinet, zonder de minſte koſten, bezorgd hebbe). Deeze verſcheidenheid van de twee voorgaande, is juiſt die, waarvan de Ridder LINNÉE (*c*), de allereerſte beſchryving en afbeelding heeft gegeeven, onder de benoeming van *Laticaudatus*, in het Cabinet des Konings van Zweeden. Dan even deeze, waarvan wy nu ſpreeken, hoe zeer dezelve in den eerſten opſlag dezelfde ſchynt met de voorgaande beſchreevene ſoort, is geheel en al verſchillende.

By de voorige twee verſcheide ſoorten is gezegd, dat die, gelyk anders de gewoone *Slangen* hebben, met geene buik- of ſtaart-ſchilden of ſchubben voorzien zyn; deeze integendeel heeft die zeer kennelyk, 't welk eene zonderlinge verſcheidenheid oplevert.

De

(*b*) W. DAMPIER en L. WAGERS *Reistogten rondom de Waereld, III. Deel bladz.* 60, 61. en 62, &c., *Amſt.* 1717. *Holl. Edit.*

(*c*) *Muſæi Adolphi Fred., Tom. I. Tab. XVI. fig. 1. pag.* 31 & 32. *Idem Syſt. Nat., pag.* 383. *Colub. Laticaudatur.*

HOUTTUIN *Natuurlyke Hiſtorie der Dieren, I Deel 6. Stuk, bladz.* 391. *Breedſtaartige.* En, *wat verder, onder de eigenlyk zogenoemde Slangen, ontmoet men nog een Surinaamſche Breedſtaart, bladz* 424.

GERINGDE PLATSTAART SLANG. 7

De verdere verſchillen, die in deeze voorkomen, en waardoor deeze zich, van de hiervooren beſchreevene, onderſcheidt, zyn als volgt:

De zwarte banden zyn breeder, ſtaan wyder vaneen, en loopen niet alle rondöm tot één. De drie eerſte banden van en by de kop loopen, op zyde van het onderkaakbeen, door een ſtreep byeen. Alle de banden zyn zwarter. De kleur is op het lyf loodkleurig blaauw, onder aan de buik geel-wit, waarby men dan nog de hierby komende buikſchilden, als een hoofdkenmerk, moet voegen. Te Haarlem, in het Cabinet van de HOLLANDSCHE MAATSCHAPPY DER WEETENSCHAPPEN is eene dergelyke. Waarſchynlyk zyn deeze beide uit de Ooſt-Indiſche Zeën.

BESCHRYVING
VAN DE
GERINGDE
PLATSTAART SLANG,
UIT DE
INDISCHE ZEËN.

*Tab. II.*

DEEZE *Slang* is mede naar haare waare grootte afgebeeld. Het geheele lyf is omringd met digt byeen ſtaande, vaalzwarte banden of ringen. De kleur, tuſſchen beide, is blaauw geelachtig.

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geelachtig-wit. Boven op den kop en punt der bek is mede een vaale zwarte vlak. De platte ſtaart is aan derzelver einde vaalzwart. Vooraan op de bek zyn mede twee ronde, mogelyk, neusgaatjes. De kop is met ſchild-plaatjes gedekt.

De oogen zyn rond, blaauwachtig, in 't midden wit. Geen oogleeden noch zichtbaare gehoorgaten. Het lyf is rondöm met kleene plat- en dichtſluitende ſchubbetjes bezet. Het lyf is rond, naby het einde der ſtaart, en de ſtaart, plat. Het heeft geen het minſte teken van vinnen. Onder, aan den buik en ſtaart, ziet men geen bewys van ſchilden of ſchubben, waarmede anders de *Slangen* voorzien zyn.

one must add as a main characteristic, the accompanying belly shields. The same one is in Haarlem, in the Cabinet of the Dutch Society of the Sciences. Both probably are from the East Indian Seas.

**Description of the Ringed Flat Tail Snake, from the Indian Seas**
**Plate II**

This snake is also depicted at her true size. The whole body is encircled by closely spaced, pale black bands of rings. The color, between the two, is pale yellowish, **[p. 8]** yellowish white. On top of the head and at the tip of the jaws is also a pale black area. The flat tail is at its end pale black. In front on the mouth are also two round, holes, possible nostrils. The head is covered with small scales.

The eyes are round, bluish, white in the middle. No eyelids nor visible ear holes. The body is covered all around with small flat and tightly meeting scales. The body is round, near the end of the tail, and the tail, flat. It does not show any sign of fins. Underneath, on the belly and the tail, one cannot see any evidence of shields or scales, which otherwise the snakes have.

[1] [Footnote from p. 3]
(a) Thes. Tom. II. Tab. LXXVII. Fig. 2 or rather I. marked as being wrong.

[2] [Footnotes from p. 6]

(b) W. Dampier en L. Wafers. Reistogten rondom de Waereld, III. Deel bladz. 60. 61 en 62. &C. , Amst. 1717. Holl. Edit.

(c) Musaei Adolphi Fred., Tom. I. Tab XVI. fig. I. pag. 31 & 32. Idem Syst. Nat. pag. 383. *Colub. Laticaudatus*.

Houttuin Natuurlijke Historie der Dieren, I Deel 6. Stuk, bladz. 391. Breedstaartige. En, wat verder, onder de eigenlyke zogenoemde Slangen, ontmoet men nog een Surinaamsche Breedstaart, bladz 424.

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# Some historical notes about the possible precedence of "*Lacerta Xiphidiura*" Carvalho, 1836, as the first identification of the Brazilian Spiny-tailed lizard *Hoplocercus spinosus* Fitzinger, 1843, and general remarks on early nineteenth century Portuguese zoology.

Luis M. P. Ceríaco[1, 2]

[1] *CEHFCi (Centro de Estudos de História e Filosofia da Ciência), Universidade de Évora, Palácio do Vimioso, Largo Marquês de Marialva, 8, 7000-809 Évora, Portugal.*
[2] *Museu Nacional de História Natural e da Ciência, Universidade de Lisboa, Rua da Escola Politécnica, 58, 1269-102 Lisbon, Portugal.*

**Abstract.** Using the remnants of the eighteenth century natural history collections of the Royal Museum of Ajuda, Lisbon, formerly classified by the botanist Félix de Avelar Brotero, the director of the National Museum of Lisbon, Francisco Assis de Carvalho, presented a list of species from the Portuguese overseas territories. In that list Carvalho referred to and briefly described new animal taxa. I argue that one of those newly described taxa could in fact be the Brazilian Spiny-tailed lizard *Hoplocercus spinosus*, which is generally regarded as having first been scientifically described by Leopold Fitzinger seven years after the publication of Carvalho's list. Framing this in the context of early nineteenth century Portuguese zoological studies, I present some comments regarding the evolution of Portuguese zoological collections and research, as well some comments on its implications for modern taxonomy and nomenclature.

**Key-Words:** National Museum of Lisbon, Francisco Assis de Carvalho, *Hoplocercus spinosus*, Leopold Fitzinger.

## INTRODUCTION

The history of Portuguese zoology in the beginning of the nineteenth century is almost unknown not only to the international community but also in Portuguese scientific circles. The decline of the once glorious Royal Cabinet of Natural History of Ajuda, Lisbon, which at the end of the eighteenth century possessed the largest natural history collections from Brazil, started immediately after the Napoleonic wars, when the cabinet was visited by Geoffroy Saint-Hilaire (in 1808) who would transfer to Paris a considerable number of specimens. That removal of material led to the expulsion of the cabinet's former director, Domingos Vandelli. The directorship was subsequently and sequentially held by the botanist Félix de Avelar Brotero (1811–1828), the bookkeeper António Pedro Lara de Carvalho (1828–1834), the medical doctor Francisco de Assis de Carvalho (1834–1835), and the emeritus professor of botany José de Sá Ferreira Santos do Vale (1835-1836). The cabinet finally closed its doors in 1836, when the remaining collections were transferred to the premises of the Royal Academy of Sciences of Lisbon where the "Lisbon Museum" was then founded. This period was also marked by the violent civil war that afflicted the country from 1828 to 1834. Even though, when the

transfer occurred, the Ajuda collections were already quite diminished (see below), they still included a considerable number of specimens, many of them rare. During these dark times for the small Portuguese natural history community, little was published. However, in 1836, Francisco Assis de Carvalho published a small paper dealing with instructions to prospective collaborators of the National Museum of Lisbon, where he also presented a list of species known to exist in the Portuguese overseas territories and in the Empire of Brazil, at that time already independent. In that list he provided descriptions of what he considered to be "new species" identified by Brotero, the botanist and former director of Ajuda. One of those descriptions presents what appears to be the first description of the Brazilian spiny-tailed lizard *Hoplocercus spinosus*, which was formally described by Leopold Fitzinger in 1843. The description by Assis de Carvalho precedes the actual accepted description and identification by seven years. I here present evidence to support the apparent precedence of "*Lacerta Xiphidiura*" Carvalho, 1836 over *Hoplocercus spinosus* Fitzinger, 1843, but do not argue for its nomenclatural adoption.

## FROM THE ROYAL CABINET TO THE NATIONAL MUSEUM

The Royal Cabinet of Natural History of Ajuda, Lisbon, was a part of a large scientific complex created in 1768 under the direction of the Paduan naturalist Domingos Vandelli. The complex also included a botanical garden, a laboratory, a drawing studio and a library. In the beginning of the 1780s, four different scientific expeditions, called the "Philosophical Voyages," departed from the Museum to the Portuguese overseas territories (Ceríaco and Brigola, in press). Those expeditions were all conducted by former Vandelli students from Coimbra University who had been trained in taxidermy and identification in the Ajuda complex. Alexandre Rodrigues Ferreira was in charge of the voyage to Brazil, which he conducted from 1783 to 1792. Joaquim José da Silva explored Angola, Manuel Galvão da Silva explored Goa (India) and Mozambique, and João da Silva Feijó was in charge of the study of the Cape Verde archipelago. All of those expeditions resulted in large natural history collections sent directly to the Ajuda complex. Ferreira produced a large number of shipments to Ajuda, including not only natural history specimens, but also ethnographic materials and a large quantity of drawings. The addition of those collections, as well as the private donations of many Portuguese amateurs, to those already present in the Cabinet prior to the expeditions made the Royal Cabinet of Ajuda one of the richest collections of the late eighteenth century, competing with the majority of European collections of that time. In 1794 a manuscript catalogue written by Ferreira, who became curator of the collection after his return from Brazil, reveals the number of specimens in the Ajuda collections at that time — no fewer than 7823 zoological specimens (126 mammals, 1250 birds, 601 amphibians and reptiles, 1230 fishes, 282 insects, and 4334 other invertebrates), thousands of botanical specimens, about 6553 geological, mineralogical, and fossil samples, and a collection of 3412 "artificial products" which included coins and anthropological collections. These collections, especially rich in undetermined Brazilian material, remained almost untouched, and unfortunately unstudied, for almost 14 years. The richness of the collections was known in European circles, and soon it awakened the interest of French naturalists. The Napoleonic Empire, which was expanding across Europe, was particularly interested to enrich the collections of that symbol of revolutionary science, the Muséum National d'Histoire Naturelle. In 1807 Emmanuelle Crétet ordered the zoologist Étienne Geoffroy Saint-Hilaire to follow the Napoleonic army to Lisbon in order to visit all the natural history collections of the Lusitanian territories and to choose and transport to Paris any important specimens and collections, with Ajuda being the primary aim. In 1808 Saint-Hilaire arrived in Ajuda and was astonished by the rich collections he encountered (a vivid description, in Saint-

Hilaire's own words, was reproduced by Hamy in 1908) and Saint-Hillaire selected a considerable portion to transport to Paris. The original list of the material chosen and transported from Ajuda by Saint-Hilaire still exists today in the historical archive of Museu Bocage (AHMB) in Lisbon, and is entitled "*Relação Dos Productos naturaes que por ordem do General Junot levou deste Real Museu M. Geoffroy de St. Hilaire em Junho e Agosto de 1808*" (AHMB Div. 16b) and reports about 76 mammals, belonging to 65 different species, 387 birds specimens from 239 different species, 32 herpetological specimens belonging to 25 different species, 100 fish specimens representing 89 species, as well as a considerable number of insects (508 specimens representing 209 species), shells (468 specimens representing 272 species), crustaceans (12 specimens representing 5 species), fossils, minerals, and ten herbaria. In Paris these collections were studied and published on by Muséum as well as foreign naturalists for decades (Daget and Saldanha 1989), and many of the constituent specimens are still present today in its collections. Despite interpretations that state that Saint-Hilaire's behavior in Ajuda was relentless and that he chose whatever was best, without thinking about the future of the Lisbon cabinet (Almaça 1993, Antunes 2003), the very words of Saint-Hilaire (Hamy 1908) and other evidence shows that, in fact, mostly duplicates were sent to Paris, with representatives of the majority of species remaining in Ajuda. Even if Saint-Hilaire was in fact a Napoleonic commissar, being part of the foreign occupation forces mandated by the Napoleonic authorities to take everything that he wanted from Ajuda, one can argue that the naturalist did not behave literally as an invader, but rather as a responsible scientist. These rich collections, the counterparts of which in Paris were studied and valued by the international community of naturalists, remained in Portugal, locked in the Ajuda cabinet for more than 28 years without any particular use besides feeding ravenous moths and catering to the curiosity of some visitors, most of whom were amateurs. The only time that these collections were worked with after Saint-Hilaire's visit was when the botanist Félix de Avelar Brotero, who became director of the scientific complex from 1811 to 1828, rearranged and reclassified the collection, which in 1810 was boxed and sent on ships destined for Brazil in anticipation of the third Napoleonic invasion of Portugal. This episode is documented in a manuscript now present in the Bibliothéque Central of the Muséum National d'Histoire Naturelle, Paris (BCMNHN), (probably sent there by Brotero), entitled *Relação dos Caixões pertencentes ao Real Museo com a marca R. M. e N.os 1 ate 92* (BCMNHN MS. 2441). The manuscript dates from 1811, and lists 92 boxes containing several hundred specimens that were sent to the Lisbon harbor to be shipped to Brasil but apparently never left Lisbon and were relocated in the Museum by Brotero himself. A similar situation occurred with the natural history collections of the University of Coimbra Museum; Francisco António Ribeiro de Paiva, professor of Natural History and director of the University museum, wrote to the crown in February 1810 asking for the return of nine boxes containing natural history specimens from the museum that had been sent to the Lisbon harbor to escape the invasion (Arquivo Histórico da Universidade de Coimbra – Processo do Professor Ribeiro de Paiva).

From manuscript catalogues of the Ajuda collections, written by Brotero at this time, and now also present in BCMNHN, it is possible to identify many specimens that not only represent the same species as those that Saint-Hilaire took to Paris in 1808 but also were collected most probably during the same collection events. A specimen of "*Pirarucu*" (*Arapaima gigas* Schinz, 1822), which was described in 1829 by Cuvier based on a specimen sent by Saint-Hilaire (the holotype is still present in the Paris collections with the registration number A 8837), is referred to in the manuscript "*Catalogo dos Peixes do Real Museu*" (Translation: Catalogue of the fishes of the Royal Museum [of Ajuda])

(BCMNHN - Ms 2441), and was maintained in the Portuguese collections until 1978, when it was consumed by the catastrophic fire of the Museu Bocage, Lisbon (Figure 1). Another fine example that illustrates the not-so-relentless behavior of Saint-Hilaire is the case of the specimen of *Pseudacanthicus histrix* Valenciennes, 1840, that remained in the Ajuda collections even though no specimen existed in Paris. Vallenciennes described the specimen based only on one drawing sent by Vandelli to Lacèpede in 1808 (Daget and Saldanha 1989), and therefore the shipment of the specimen to Paris was not necessary. The specimen was referred to by Felix de Brito Capello as being in the Lisbon Museum collections in 1868 (Capello 1868) and it also remained in the Museu Bocage, Lisbon, until the fire of 1978 (Figure 1).

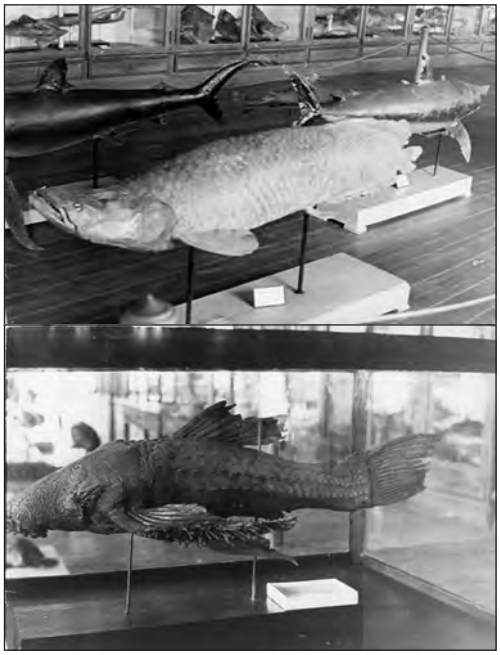

**FIGURE 1.** Specimens of *Arapaima gigas* Schinz, 1822 (top) and *Pseudacanthicus histrix* Valenciennes, 1840 (bottom) originally from the Alexandre Rodrigues Ferreira expedition, present at the Museu Bocage during the second half of the twentieth century. Copyright: Arquivo Histórico do Museu Bocage (AHMB).

Despite this, Brotero published only one paper related to the zoological collections from Ajuda, a small paper about the seals (Brotero 1817), in which he presented an interesting application of Lamarck's biogeographic and transformationist ideas in the classification of species. This Lamarckian approach is not hard to understand because Brotero spent some years studying in France and had close contact with Lamarck, as well as other well-known French naturalists of that time (Castel-Branco 2007). At approximately the same time that Brotero left the directorship of Ajuda the Portuguese civil war started. It lasted from 1828 to 1834, and those dark times would also influence the scientific activities of the scientific complex of Ajuda. The war started due to the appropriation of the Portuguese throne by King Miguel I, supported by the absolutist party, and the legitimate denial of his enthronement by Pedro IV, at that time already emperor of independent Brazil, and Pedro's daughter and legitimate heir to the Portuguese crown Queen Maria II, both supported by the liberal party. During the time of the war, and during the rule of the usurper King Miguel, the Ajuda complex was directed by a bookkeeper appointed by the absolutist party, António Pedro Lara Carvalho, and no studies or works on the collections are known from that time. With the end of the civil war and the victory of the liberal party in 1834, Dr. Francisco Assis de Carvalho, associated with the victorious party, was assigned to the direction of the complex. The few months that Assis de Carvalho directed the complex were not easy. At times he had to deal with sporadic raids by rebels allied with the absolutist party, who invaded the Botanical Garden and stole mineralogical specimens and copper and iron instruments, and with the "witch-hunt" conducted to root out employees who were sympathetic to the usurper's ideals. He also needed to relocate materials that were stolen during the conflict. Without any specific or acknowledged reason, Assis de Carvalho was then supplanted by an academic of higher rank, the emeritus professor of botany from the University of Coimbra, José de Sá Ferreira Santos do Vale. Santos do Vale stayed as director of the Ajuda

INSTRUCÇÕES

ACADEMIA R. DAS SCIENCIAS

FRANCISCO DE ASSIS DE CARVALHO,

LISBOA

INDICE

Ant — Courtier formicivora = Gibóia ordinaria do Brasil.
Cobra cap. cinza = Gibóia de muitas malhas verdiaes do Rio Negro.
Cristas — Mutu = Surucucú do Brasil.
Gymnotus = Carapão — do R. Negro.
Electricus — Idem.
Rudratus — Idem.
Perca — Pescada — do Rio Negro.
Silurus — Fasciatus — Idem.
Salmo — Piranhuas — Idem.
Argentina — Tireira do R. Negro.
Cetacé brasil — Mussu = Ariramá do Rio Amazonas.
Mussu = Pirarucú do R. Amazonas.
Raia verde — Ecuime = Pirabebe do R. de Janeiro.
Cutrateus — Quaquaterua = Boyetinga do Brasil.
Focca — Megalodelma = Sarapó enfeiado do Rio Negro.

**FIGURE 2.** Front page of Carvalho's "Instrucções..." (top left), the first page of the index containing the known species from the different Portuguese colonies (top right), and the page where 'Lacerta Xiphidiura' was described (bottom). Adapted from Carvalho (1836).

complex from late 1835 to 1836, and did not have much time to produce any significant work in the collections or botanical garden. In 1836, a royal law dissolved the Royal Cabinet and Botanical Gardens of Ajuda, ordering the transfer of all the natural history collections from the Cabinet to the building of the Lisbon Academy of Sciences, in the Nossa Senhora de Jesus Covent in the center of Lisbon, where the National Museum of Lisbon was to be created. This transfer was not peaceful. At the head of the transfer process was Assis de Carvalho, the former director of the Ajuda complex, whose confrontational temper and lower academic rank triggered the opposition of Santos do Vale, delaying the final transfer for months. After months of conflicts and odd episodes, the entire collection was then transferred to the National Museum of Lisbon, and the doors of the Ajuda cabinet closed forever. In the National Museum of Lisbon, in the premises of the Lisbon Academy of Sciences, the collections stayed without proper curatorship or any scientific use until 1858, when the few remaining specimens were transferred to the building of the Polytechnic School of Lisbon, under the superintendence of José Vicente Barbosa du Bocage. There they stayed until 1978 when a catastrophic fire completely destroyed the Museum and all of its collections (Almaça 1993, Ceríaco et al. in press).

## ASSIS DE CARVALHO BROTERO'S NEW SPECIES

In the National Museum of Lisbon, Assis de Carvalho informally assumed the position of director. Obeying orders from the Lisbon Academy of Sciences, which was appointed as administrator and manager of the Museum and was charged with enriching the collections, he wrote and published one of the only Portuguese naturalist publications of that time, the *Instrucções sobre o modo de preparar, e conservar accidentalmente os differentes exemplares zoologicos, que houverem de ser conduzidos das possessões portuguezas ultramarinas até á sua definitva preparação* (Translation: Instructions about the way to prepare and conserve different zoological specimens that would be sent from the Portuguese overseas territories to their final preparation) (Carvalho 1836; Figure 2). It was a typical and practical instruction list for museum collaborators concerning the methods used to capture and prepare zoological specimens, as well as instructions to take notes about their ecology and other anecdotal information. Assis de Carvalho included a brief list of the species that were already known that could be found in the Portuguese overseas territories as well as in Brazil, entitled *Indice De algumas especies, que nos podem vir das Possessões Portuguezas Ultramarinas, e do Imperio do Brazil* (Translation: Index of some species, which may come from the Portuguese possessions overseas, and from the Empire

of Brazil). There, among other already-known species, Assis de Carvalho pointed out some species that he assumed to be new to science. Many of these new species were assumed by Assis de Carvalho to be described by Brotero ("de Brotero"), although that famous Portuguese botanist never dedicated any publication to zoology with the exception of the one note about seals (1817) and the Portuguese nomenclature for the translation of Cuvier's "*Tableau élémentaire de l'histoire naturelle des animaux*" in 1815. The reference to Brotero must allude to some unpublished Brotero material, such as inventories and lists, prepared by him during the reclassification of the Ajuda collection during his directorship, or even to the shelf names coined by Brotero when he reorganized the collection. Brotero was the director of the Ajuda establishment from 1810 until 1828, during which time the Ajuda included the Botanical gardens but also the Natural History Cabinet. In Assis de Carvalho's 1836 *Instrucções*, Brotero is credited as the "author" of many new species as well as new genera like the "*Villoso Denticulatus* = Genero novo de Brotero = Capoeira de M. Geraes" (Translation: "*Villoso Denticulatus* = Brotero's new genus = From Capoeira, M[inas] Geraes [Brazil]"); "*Simia Itapuá* = Esp. nova de Brotero - Macaco de prego do Pará" (Translation: "*Simia Itapuá* = Brotero's new species - Capuchin monkey from Pará"); "*Vultur Uiravassú* esp. nova de Brotero = Guincho do Brazil ou Gavião Real do Pará." (Translation: "*Vultur Uiravassú* Brotero's new species = Guincho from Brazil or Royal Sparrowhawk from Pará."), and finally the "*Lacerta Xiphidiura* esp. nova de Brotero - Lagarto de cauda pugioniforme do R. Negro." (Translation: "*Lacerta Xiphidiura* Brotero's new species - dagger-tailed Lizard from R.[io] Negro."). Besides these Assis de Carvalho mentions other new species, although never giving any clear description of them (Table 1).

Also, in the complete catalog of the vertebrate species that existed in the Lisbon Museum, immediately after the transfer of the Ajuda collections and likely made before the publication of the "*Instrucções...*", Assis de Carvalho refers in his inventories to some new species named by Brotero (some of them the same as in Assis de Carvalho's 1836 publication. In that document, AHMB Rem. 437 – still present in the historical archive of Museu Bocage, Lisbon, dated 1836 and entitled of "*Francisco de Assis de Carvalho, Catalogos ms. das collecções de Vertebrados do Museu da Academia das Sciencias de Lx. - Animaes Vertebrados*" (Translation*: Francisco Assis de Carvalho, Manuscript catalogues of the vertebrate collection of the Lisbon Academy of Sciences Museum - Vertebrate Animals*) (Figure 3), we can see the reference to some of "Brotero's new species" (Table 2). This list shows that Assis de Carvalho published in the *Instrucções* some "new species" that were present in the manuscript catalogue with reference to having been described by Brotero, but without fully referencing Brotero as the supposed author; Assis de Cavalho also made some adaptations to the given names and excluded others. This could mean that Assis de Carvalho himself had some doubts regarding the Brotero identifications and decided not to publish them, maintaining only the reference in the internal documentation and museum catalogues.

## THE IDENTITY OF "*LACERTA XIPHIDIURA* ESP. NOVA DE BROTERO"

*"Lacerta Xiphidiura* esp. nova de Brotero - Lagarto de cauda pugioniforme do R. Negro." (Translation: *Lacerta Xiphidiura* new species from Brotero - dagger-tailed Lizard from the Rio Negro).

Other than "*Lacerta Xiphidiura,*" none of the brief descriptions presents any clear or distinctive characters that could, without major doubt, permit the identification of the species in question. Analyzing the short description it is easy to see that the key word is the adjective "*pugioniforme.*" The word "*Pugioniforme*" has no direct translation in Portuguese. It is identified in the Oxford English Dictionary

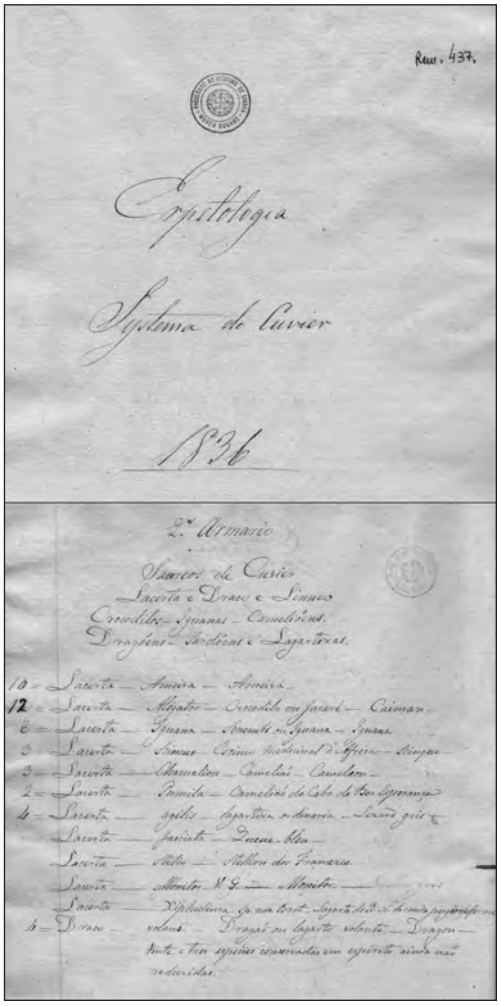


**FIGURE 3.** Front page of the manuscript herpetological catalog of the National Museum of Lisbon collections in 1836 ("Erpetologia Systema de Cuvier") and the page where "*Lacerta Xiphidiura*" is mentioned. Copyright: Arquivo Histórico do Museu Bocage.

as a rare botanical term, and defined there as "especially of a leaf: Dagger-shaped"; the etymology is from classical Latin *pugion*, *pugio* dagger and scientific Latin *iformis*. Based on this, what Carvalho was referring to was a dagger-tailed lizard from Rio Negro, a tributary of the Amazon river. This idea can also be deduced from the epithet "*Xiphidiura,*" which is based on the Greek word "*Xiphi*" (Ξίφη), which means "sword," reinforcing the idea of a spiky tail. If we consider the few, but quite diagnostic, characters presented by Assis de Carvalho, we are forced to conclude that "*Lacerta Xiphidiura*" is *Hoplocercus spinosus* Fitzinger, 1843. *Hoplocercus* is a monotypic genus, the Brazilian spiny weapontail *H. spinosus* Fitzinger, 1843, only known from Brazilian and Bolivian rainforests (Torres-Carvajal et al. 2011), and unmistakable because of the uniqueness of its tail among other Brazilian reptiles. The presence of at least one specimen of the species in the Ajuda collections is certain based on the watercolors of artists of the "Philosophical Voyage" of Alexandre Rodrigues Ferreira to Brazil, from 1783 to 1792. In one of the surviving drawings we can see a clear representation of a dead *H. spinosus* (Figure 4). All of the drawn specimens were sent to Ajuda, as were many other pictures, some of them quite unique and distinctive that can undoubtedly be associated with surviving specimens still present in the Paris collections.

Two other spiny-tailed lizards, the Tropical Thornytail Iguana, *Uracentron flaviceps* Guichenot, 1855, and the Green Thornytail Iguana, *Uracentron azureum* Linnaeus, 1758, occur in Brazil. The known Brazilian distribution of *U. flaviceps* is currently limited to a few locations in the western part of the country, namely in the states of Amazonas, Rondônia and Acre (Freitas et al. 2011). The other species, *U. azureum*, is more common in the country (Avila-Pires 1995). It can be argued that "*Lacerta Xiphidiura*" also could represent one of these two species, since its "pugioniform" tail could also refer to either of these. However, there are additional arguments that lead me to believe that it represents *H. spinosus*. The geographical location given by Carvalho is "Rio Negro," north Brazil, surely a locality from the Alexandre Rodrigues Ferreira expedition, because many other recognized specimens from the "philosophical voyage" also refer to that location (Ceríaco and Bour 2012). From what is currently known, the distribution of *U. flaviceps* does not reach this area, being confined to the

**TABLE 1** - Taxa described by Assis de Carvalho in the 'Instrucções...' (1836)

| Original name | Original description | Translation of the original description | Possible correspondence (made by the author) | Page |
|---|---|---|---|---|
| *Testudo Ununguis* | Testudo Ununguis esp. nova - Tartaruga de huma unha dos mares do Brazil." | Testudo Ununguis new species - One clawed turtle from Brazilian seas" | *Lepidochelys kempii* Garman, 1880 | P. 73 |
| *Simia Itapuá* | "Simia Itapuá = Esp. nova de Brotero - Macaco de prego do Pará" | Simia Itapuá = Brotero's new species - Capuchin monkey from Pará | *Sapajus apella* Linnaeus, 1758 | P. 75 |
| *Vespertilio Prosthianodas* | "Vespertilio Prosthianodas esp. nova = Morcego sem dentes anteriores - Andirá ou Morcego orelhudo do Pará" | "Vespertilio Prosthianodas new species = Bat without anterior teeth - Andirá or Big-eared bat from Pará" | *Histitotus velatus* I. Geoffroy, 1824 | P. 76 |
| *Vespertilio Trigonurus* | "Vespertilio Trigonurus esp. nova = Morcego de membrana triangular" | "Vespertilio Trigonurus new species = Bat with triangular membrane" | unknown | P. 76 |
| *Delphinus Bisdorsalula* | Delphinus Bisdorsalula esp. nova = Golphinho ou Boto do Rio Amazonas Pyrá-Yauára dos Indíos. | Delphinus Bisdorsalula new species = Dolphin or "Boto" from the Amazone river, Pyrá-Yauára in indian dialect | *Inia geoffrensis* Blainville, 1817 | P. 77 |
| *Vultur Uiravassú* | Vultur Uiravassú esp. nova de Brotero = Guincho do Brazil ou Gavião Real do Pará. | Vultur Uiravassú Brotero's new species = Guincho from Brazil or Royal Sparrowhawk from Pará. | unknown | P. 77 |
| *Vultur Uravassù* | "Vultur Uravassù esp. nova de Brotero = Guincho do Brazil" | Vultur Uiravassú Brotero's new species = Guincho from Brazil | unknown | P. 79 |
| *Testudo Amasonica gibbosa* | "Testudo Amasonica gibbosa esp. nova - Tartaruga do Rio Amazonas" | Testudo Amasonica gibbosa new species - Turtle of the Amazone River | unknown | P. 82 |
| *Lacerta Xiphidiura* | "Lacerta Xiphidiura esp. nova de Brotero - Lagarto de cauda pugioniforme do R. Negro." | Lacerta Xiphidiura Brotero's new species - dagger-tailed Lizard from Rio Negro. | *Hoplocercus spinosus* Fitzinger, 1843 | P. 82 |
| *Boa Centoculus* | "Boa Centoculus esp. nova = Giboia de muitas malhas oculares do Rio Negro." | Boa Centoculus new species = Python with many "ocular" spots from Rio Negro. | *Epicrates cenchria* Linnaeus, 1758 | P. 83 |

**TABLE 2** - Taxa identified as Brotero's descriptions in 1836's Assis de Carvalho "*Manuscript catalogues of the vertebrate collection of the Lisbon Academy of Sciences Museum - Vertebrate Animals*" (AHMB Rem. 437)

| Original name | Original description | Translation of the original description | Possible correspondence (made by the author) |
|---|---|---|---|
| *Simia nigro-fulva* | *Simia nigro-fulva especie nova de Brotero* | *Simia nigro-fulva Brotero's new species* | unknown |
| *Simia Ya* | *Simia Ya especie nova de Brotero* | *Simia Ya Brotero's new species* | unknown |
| *Vespertilio trigonurus* | *Vespertilio trigonurus - especie nova de Brotero* | *Vespertilio trigonurus - Brotero's new species* | unknown |
| *Verpertilio Prorthianodas* | *Verpertilio Prorthianodas - especie nova de Brotero* | *Verpertilio Prorthianodas - Brotero's new species* | *Histitotus velatus* I. Geoffroy, 1824 |
| *Testudo orbicularis - Testudo Amazonica* | *Testudo - orbicularis - Testudo Amazonica - Brot. - Tartartuga do R. amazona* | *Testudo - orbicularis - Testudo Amazonica - Brot. - Amazon river turtle* | unknown |
| *Testudo Mydas - Testudo ununguis* | *Testudo - Mydas - V. P. - Testudo ununguis - Brotero - Tartaruga de huma unha* | *Testudo - Mydas - V. P. - Testudo ununguis - Brotero - One claw turtle*; | *Lepidochelys kempii* Garman, 1880 |
| *Lacerta Xiphidiura* | *Lacerta - Xiphidiura - sp. nov. Brot. - Lagarto o R. N. de cauda pugioniforme* | *Lacerta - Xiphidiura - sp. nov. Brot. - Rio Negro Lizard with pugioniform tail* | *Hoplocercus spinosus* Fitzinger, 1843 |
| *Coluber dubius - Boa Centoculus* | *Coluber - dubius - Boa - Centoculus - Brot. - Giboia do Rio Negro* | *Coluber - dubius - Boa - Centoculus - Brot. - Rio Negro's Python* | *Epicrates cenchria* Linnaeus, 1758 |

western areas of Brazil, Colombia, Ecuador and Peru (Greene 1977; Vitt and Zani 1996). However, the geographical distribution of *U. azureum* is sympatric with that of *H. spinosus* in Brazil (Avila-Pires 1995). Even if morphologically similar, the two species have quite different characteristics. The two can be distinguished immediately by their coloration; *Uracentron azureum* exhibits a strong greenish coloration with an evident dark-striped pattern on its back, whereas *H. spinosus* has a brownish coloration, with some yellow stripes originating from the venter and sometimes reaching the back. If this specimen was originally from the Alexandre Rodrigues Ferreira expedition, and if it is represented by the watercolor cited above, we can clearly exclude *U. azureum* by the analysis of the drawing, because the animal shows no evidence of the typical and quite visible striped pattern of that species and it seems more likely that the drab pattern of *H. spinosus* would be ignored rather than the colorful pattern of *U. azureum*. The watercolor also reveals another distinguishing characteristic that lends strength the idea that it represents a specimen of *H. spinosus*. The "spiny tail" of *U. azureum* is characterized by large, imbricate, strongly mucronate scales, in 19-22 transverse rows on the dorsal surface of tail, whereas those

**FIGURE 4.** Original watercolor from the "Philosophical Voyage" of Alexandre Rodrigues Ferreira to Brazil, sent to Ajuda, depicting a "*Salamandra*", clearly representing a dead specimen of *Hoplocercus spinosus* Fitzinger, 1843. Copyright: Biblioteca Nacional do Brasil.

of *H. spinosus* are large, prominent, keeled and mucronate, with a larger middorsal row, forming distinct transverse rows (less distinct distally), and there is a series of 12-14 large, hook-like spines bordering each side of the tail, increasing in size both from base to about the middle (= widest part) of the tail, then decreasing again in size toward the tip (Avila-Pires 1995). Comparing the tail of the illustrated lizard with the characteristics of both species, the hook-like spines, the transverse rows, and the large middorsal scales (Figure 5) clearly are those of *H. spinosus*. The robust limbs and short fingers in the drawing also point to *H. spinosus*.

The last argument that can be used to support this identification is the fact that one of the syntypes that Fitzinger used to describe *H. spinosus* may, in fact, be a specimen originally from the Ferreira expedition, and consequently derived from the Ajuda cabinet.

## FITZINGER'S (1843) DESCRIPTION OF *HOPLOCERCUS SPINOSUS*

The original description of *Hoplocercus spinosus* was prepared by the Austrian Leopold Fitzinger (1802–1884). Fitzinger (1843), in the "*Fasciculus primus*" of his "*Systema Reptilium,*" which was dedicated to the "Amblygossae." The original description reads "*3. Gen. Hoplocercus. Sceloporus? Fitz. Pholidosis notaei heterogenea. Aures apertae. Pori femorales distincti, anales nulli. Dorsum integrum. Plica axillaris nulla, lateralis distincta, duplex. Labia ad oris angulum lobo valvato destituta. Cauda breviuscula, verticillata. Caput breve; scutello occipitali distincto, minimo. Orbitae inermes. Porcae superciliares arcuatae. Nares laterales, planae. Dentes palatini distincti. Gula cute laxa, plica transversa. Jugulum transverse plicatum; plica continua. Collum ad latera longitudinaliter plicatum. Cervix integra. Cauda depressiuscula, laxa, simplex. Palmae plantaeque pentadactylae. Digiti plantarum simplices. Squamae notaei subcarinatae; abdominales laeves. Scutella pilei subtuberculosa. 1. Hoplocercus spinosus. - Sceloporus ... ? Fitz. America. Brasilia. Mus. Paris. Vindob. Prag.*"

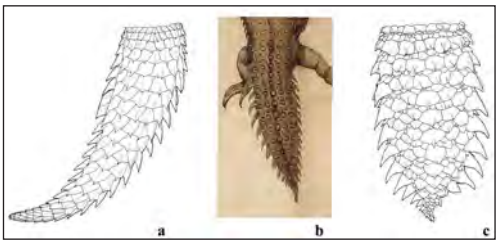


**FIGURE 5.** Comparison of the tails of *Uracentron azureum* (a) and *Hoplocercus spinosus* (c) with the tail of the drawing from Alexandre Rodrigues Ferreira expedition (b). Adapted from Avila-Pires (1995).

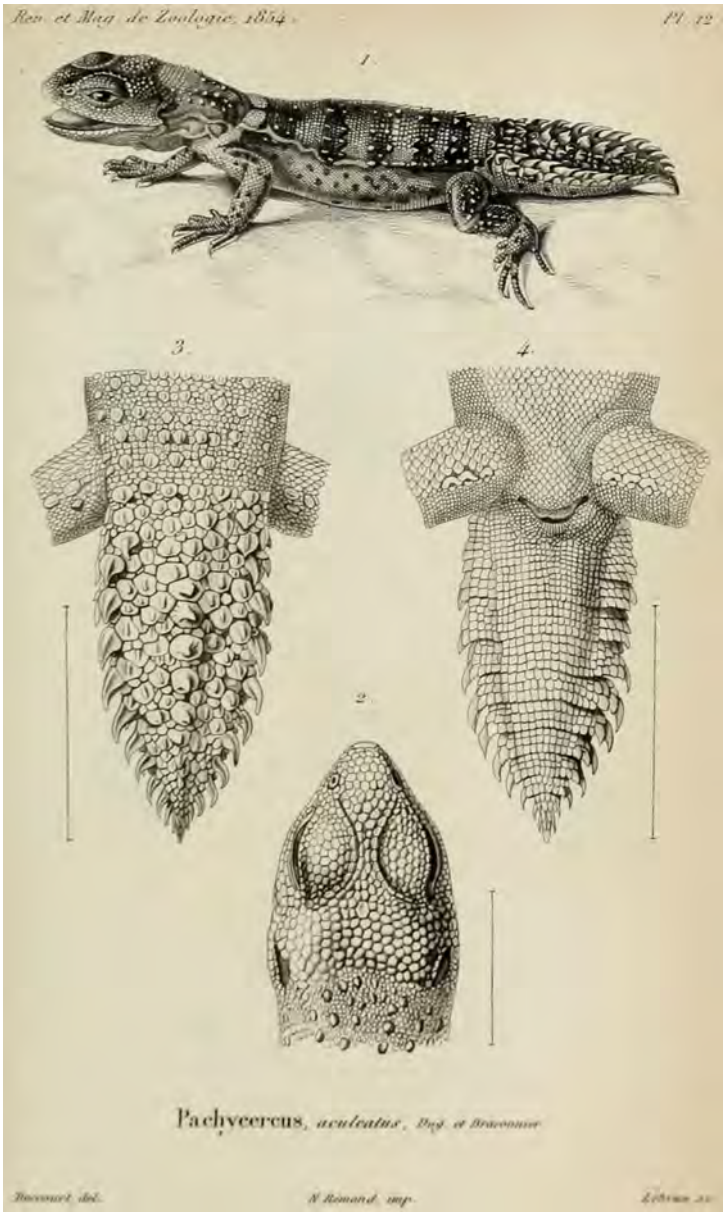


**FIGURE 6.** Original plate for *Pachycercys aculeatus* Dugés and Braconnier in Duméril 1854 (Duméril 1854).

The detailed description that Fitzinger made of the species, and the uniqueness of its characteristics, is reflected in the stable taxonomic and nomenclatural history of the species; more than 169 years after the original description, only one synonym was erected in 1854 by Dugés and Braconnier, *Pachycercus aculeatus*. It was based upon a single, desiccated specimen put in alcohol from "Saint-Paul (Brésil)" that was offered to the Muséum by Séraphin Braconnier (Dugés and Braconier in Duméril 1854), and is, therefore, not the specimen from Ajuda (Figure 6). The type specimen of *P. aculeatus* is presently lost (Bour and Brygoo 2013 [2014]). Besides that, the name is stabilized as *Hoplocercus spinosus* (Boulenger 1885, Peters and Donoso-Barros 1970, Dirksen and De La Riva 1999, Pianka and Vitt 2003, Torres-Carvajal et al. 2011).

In the original description Fitzinger (1843) noted that the specimens analyzed were from the museums of Paris, Vienna, and Prague. One of the syntypes to which Fitzinger refers, from the "Mus. Paris" may originate from the shipment that Saint-Hilaire made from Ajuda. In the preliminary list made by Lacepède about the reptiles, amphibians, and fishes brought from Saint-Hilaire from Ajuda ("Reptiles et Poissons rapportés du Portugal par M. le Professeur Geoffroy St Hilaire." (Daget and Saldanha 1989)), the French naturalist referred to "*1 Stellion courte queue*" that may refer to this specimen. Another clue that reinforces the idea that the specimen studied by Fitzinger in Paris is originaly from the Ajuda collections is that at the time he studied it in the Muséum most, if not all, of the Brazilian collections pres-

ent there, came from the Saint-Hilaire mission to Lisbon. With the help of Dr. Roger Bour I tried to locate the specimen studied by Fitzinger in the Muséum, but our search was not successful and the specimen cannot be located. The oldest specimen located carries a note indicating it was "bought in 1857" (Figure 7). Considering the fact that the presence of the species in Ajuda is confirmed by the watercolor from the Ferreira expedition, and as stated above, Saint-Hilaire left duplicates of the majority of the specimens he brought to Paris in Ajuda, it is plausible that least one specimen of this species stayed in Ajuda after Saint-Hilaire's visit and was available for study by Brotero and Assis de Carvalho.

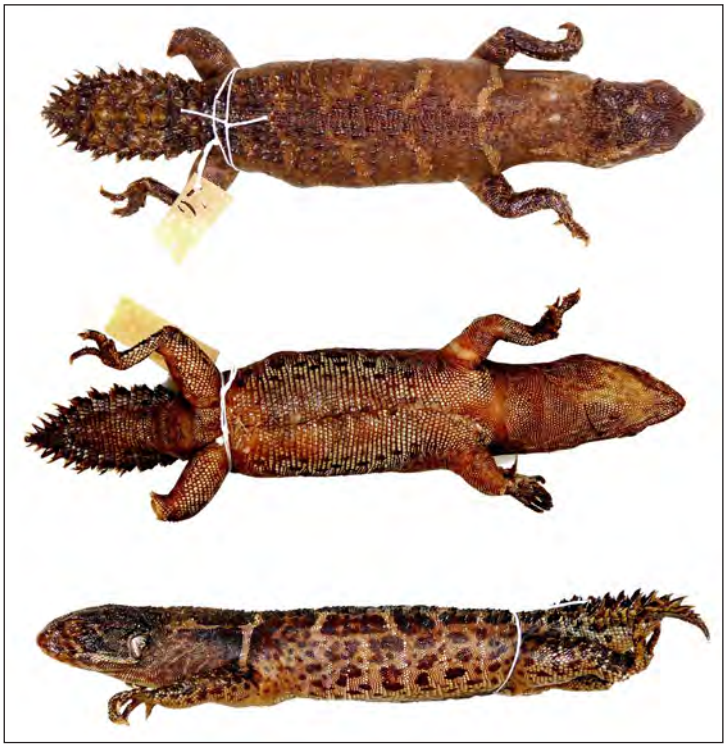

**FIGURE 7.** Specimen of *H. spinosus* from the collections of the Muséum national d'Histoire naturelle, Paris (MNHN 2357), one of the oldest specimens present on the Paris collections, bearing the note that it was 'bought in 1857'; it is, therefore, not the specimen studied by Fitzinger.

## FINAL REMARKS

The present case strongly suggests that seven years before Fitzinger, Assis de Carvalho described the species of the Brazilian spiny weapontail now recognized as *Hoplocercus spinosus*, supposedly named (but not published) by Brotero years before. Because Brotero never published the description nor even the binomen, its authorship is attributable to Carvalho, as are those of other names presented in his "*Instrucções...*" (Carvalho 1836). Because most of these lack any description that can be unequivocally related to any known species, they are *nomina nuda*, with the sole exception of "*Lacerta Xiphidiura*." The short description, complemented by the watercolor and the general history of Portuguese collections, clearly gives two important characters that allow us to identify the species; those are the form of the tail and its geographic distribution. The other major problem is that Carvalho did not clearly indicate a type specimen. Through the analysis of the publication itself, but also from the manuscript catalogues of that time, we clearly know that he was referring to a specimen present in the Ajuda collections, and later those in the National Museum of Lisboa. However, the complete destruction by fire of all these collections in 1978 prevents confirmation of this. Although its nomenclatural significance may be debatable (see below), the case not only presents an important contribution to the history of zoology and natural history collections in the first half of the nineteenth century in Portugal, but also reinforces the established importance of the former Ajuda collections to the zoological sciences. Unraveling these "lost stories" can help modern investigators not only to know the past works of their predecessors, but also can contribute to current and pertinent zoological debates. Such is the

case in the recent debate about *Testudo gigantea*, currently being considered by the International Commission for Zoological Nomenclature (Frazier 2009), prompted by Bour's (2006) rediscovery of the holotype of the *Testudo gigantea* Schweigger, 1812, which was also a specimen originally from the Ferreira voyage, and consequently from the Ajuda Cabinet. For that specific case, only the study of historical documentation present in Portuguese archives clarified one of the major points of the discussion: the identity and origin of the specimen (Ceríaco and Bour 2012).

As far as can be determined, no references to "*Lacerta Xiphidiura*" or even "*Xiphidiura*" were ever used in Portuguese publications except in the original reference by Carvalho (1836). Likewise, in the comprehensive *Catalogue of the lizards of the British Museum* (Boulenger 1885) the name is not cited. Neither the name nor the publication are referred to by Vanzolini (1977). It is quite probable that the *binomen* was never used again in scientific bibliography. For example, it is not listed by Sherborn (1932:332) in his *Index Animalium*, a compendium of zoological taxonomic species nomenclature from 1758 to 1850. There are several reasons that can help explain this situation. The binomen and description were published in an uncommon type of publication in which new taxa generally are not proposed. The *Instrucções* was literally a naturalist's instruction booklet, not designed to be a major reference work for naturalists, but a practical and simple work to help those, mostly amateurs, who would capture and prepare natural history specimens to send back to the Lisbon museum. The very nature of the publication may have prevented its distribution into academic circles, being specially aimed at non-academics who needed practical information. This may have contributed to the almost total obscurity of the booklet, and consequently to the "loss" of the *nomen* and short description. In this case, and according to the rules of the International Code for Zoological Nomenclature "*Lacerta Xiphidiura*" should be considered as a *nomen oblitum*, because, despite its temporal precedence in relation to Fitzinger's description, it has not been used for identifying the species, as far as we know, since its establishment in 1836, whereas *Hoplocercus spinosus* has been in consistent and regular use in hundreds of publications (see references in Avila Pires 1995, Vanzolini 1977, etc.).

## ACKNOWLEDGMENTS

I thank Dr. Aaron Bauer for his help with the English version of this paper and for providing important comments and suggestions that led to the improvement of it. Christopher Bell and two anonymous reviewers also contributed with important comments and suggestions on the original manuscript, for which I am grateful. I also am indebted to Dr. Roger Bour for some comments and help regarding the possible location of the Fitzinger Parisian specimen. This investigation was a part of my PhD thesis, funded by the Portuguese Foundation for Science and Technology (FCT-MCTES) PhD grants, with the grant reference SFRH/BD/66851/2009.

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# Recent Literature 2

Richard Wahlgren

Prennegatan 23B, SE-223 53 Lund, Sweden.
richard.wahlgren@live.se

An annotated listing of recent literature dealing with historical or bibliographic themes in herpetology appeared in *Bibliotheca Herpetologica* volume 7(2), 2008. This is a second contribution on the same subject matter and covers a few books of many that have been published in the very recent years. The annotations are quite sketchy vis-à-vis broad book reviews and readers are invited to submit full reviews of these or any other literature of similar kind for publication in *Bibliotheca Herpetologica*. Please contact the Editor with your proposals or submission.

**Adler, Kraig (Ed.). Contributions to the History of Herpetology. Volume 3. Kraig Adler, Herpetologists of the Past, Part 3; John S. Applegarth, Index of Authors in Taxonomic Herpetology, Third Edition; R. Altig, Academic Lineages of Doctoral Degrees in Herpetology, Third Edition. 8 August 2012.**
*Vancouver, British Columbia, Canada, Society for the Study of Amphibians and Reptiles (SSAR), Contributions to Herpetology, Volume 29. Pp. (2), 564, (5). Clothbound in quarto. ISBN 978-0-916984-82-3. 75 US dollar*

The first volume in the series was published in September 1989 to commemorate the 1st World Congress of Herpetology in Canterbury, England, where a softbound version was presented to the congress delegates. The hardbound copy in dark blue cloth became available short thereafter. The second volume was issued to commemorate SSAR's 50th anniversary meeting, which was held in Saint Louis, USA in 2007 and, again, a softbound copy was included in the meeting bag. This, the third and final volume was issued in 2012 to commemorate the 7th World Congress of Herpetology in Vancouver, Canada and like previous volumes was given free to the congress delegates as a softbound copy. A hardbound copy was issued short thereafter. Volume one is since long out of print; see the next entry in this list. All three volumes are in the same style in quarto, all displaying on the front cover examples of signatures by people appearing among the biographies. All volumes are divided in three sections in which the first by Kraig Adler named Herpetologists of the Past consists of extensive biographies that in each volume fill almost 70 %. John S. Applegarth has compiled the second section consisting of an index of 5,290 authors in taxonomic herpetology. The alphabetical list includes the full names, dates, countries of residence, and orders of taxa for everyone who has proposed a new taxon (genus or below) or has had a taxon named in their honor. The index in the third volume is expanded from previous versions and replaces them. Ronald Altig has made the third section – a listing of academic lineages, i.e. the association of senior professors to students, of herpetologists from 58 countries providing information of the names of their doctoral university, their major professor, and the date of their degree.

Kraig Adler's series in the three volumes covers biographies of 786 herpetologists, historic in the sense that all are deceased. They are described with biographic text, portrayed with a picture and with one or more samples of the person's signature. Each individual's account is ranging from half a page long to several pages. The completion of volume one to three of the series marks a spectacular result from what can easily be judged must have been an enormous effort and required proficient knowledge not only on all aspects

of herpetology, but also on world history and general bibliography. Volume three features 349 individuals including people that were omitted in previous volumes or have since diseased. This is a remarkable encyclopedia of biographical information for anyone doing herpetological field research, learning from literature or from the web, and contributing by any means in herpetology or actually biology in a wide sense. But as I said already in 2008, they are definitely not just reference books, but afford a truly enjoyable read.

**Adler, Kraig (Ed.). Contributions to the History of Herpetology. Volume 1 (revised and expanded). Kraig Adler, Herpetologists of the Past, Part 1. 1 August 2014.**
*SSAR. Ithaca, New York, USA. Contributions to Herpetology, Volume 30. Pp. 172, (5), and pls. 42. ISBN 978-0-916984-82-2. Clothbound in quarto. 60 US dollars.*

The series of biographies of herpetologists in three volumes was described above. The first volume has however been out of print since year 2000. Instead of just reprinting it the author grabbed the opportunity to correct some errors and add plenty of new material by way of footnotes to the original text. A 7-page new section includes several new portraits as well as corrections and annotations to volumes 2 and 3. All portraits have been rescanned with the latest technology. There are 42 new plates illustrating mostly letters penned by the biographed authors. Another 54 colored plates of a high reproduction standard are depicting illustrations in classical herpetological books, all described in volume 1 and usually with an insert of a title page, a book cover, an institution building or a portrait of a person often in some kind of action. Kraig Adler is, as usual, meticulous about sources to any kind of information and he provides credits to ownership of all reproduced images. Incidentally, of the color plates an incredible 85 % of the sources, mostly hard-to-get classical books on herpetology, comes from the Adler collection.

The text of the first edition is not reset and the pagination is retained for easy reference. The new uncolored plates are part of the series of 96 new plates, but are not part of the pagination of the book. However, the new color plates are placed at the back of the book and they form part of the pagination, but this is not printed although they are sometimes referred to by page number. The comprehensive index covers all three volumes. The sections "Taxonomic Authors" by John S. Applegarth and "Doctoral Lineages" by Ronald Altig that first appeared in the 1989 edition were latest updated in volume 3 (2012) and do not appear in this edition. Volume 1 (revised and expanded), volume 2 (at $65) and volume 3 ($75) are available from SSAR www.ssarbooks.com.

In conclusion, the complete series focusing on herpetological history with volume 1 to 3 that is now brought up-to-date, is a remarkable achievement by three committed authors. The full set should absolutely be an integral part of all herpetologists' libraries.

**Li Vigni, Fabrizio. A Life for Reptiles and Amphibians. Volume 1. A collection of 55 interviews on «How to become a Herpetologist». 2013.**
*Frankfurt am Main, Germany, Edition Chimaira. Pp. 495, (17). Hardcover in quarto. ISBN 978-3-89973-199-6. 78 euro.*

Fifty five already established herpetologists from all over the world have been interviewed by Fabrizio Li Vigni. Only three of them are females (!). The first 18 or so questions are standardized about personal details, academic careers (hardly any amateurs), present occupation, hopes for the future, opinion on herpetocultures, driving forces to become a herpetologist, and travel as well as field experiences. The questions that follow are more personalized and depend on the course of specialiization of the person being interviewed.

The average length for each "questions and answers" is about nine pages, but can vary

from two to twelve. A separate 158-page long section comprises color photographs, usually taken in the field, provided by the interviewed herpetologists with an average of about three pages for each, but these also vary considerably from one to up to six pages. Each interview is accompanied by a portrait and a signature. Nowhere is it stated how the interviews were performed. Did the author travel to meet everybody for a personal dialog or they just exchanged emails? The focus of the interviews is sometimes restricted. There is not one question about the endeavor by Kraig Adler producing a set of books describing almost 800 now deceased herpetologists with biographical data in a similar way as this book. Or his vast contributions in both reprinting classical and producing modern herpetological books is not pointed out. Kraig's significant herpetological research on salamander orientation is indeed queried in detail as is his and Ermi Zhao's work on Herpetology of China (1993).

The style of the book bears resemblances to a "question and answer" aimed at young people. The editor did homogenize presentation of the name of the persons and place and date of birth. But is it still necessary with two "headings" to provide these introductory data? I think with additional editing the markedly oversized book, almost 2.5 kg, could have been condensed to a size and weight of a field guide. One important question is of course to which audience this book is directed. I quote the author's last sentence at his preface that could give some advice: "In the hope that my book will be able to help somebody find answers to his or her questions, or even assist with deciding what's next in their lives and careers, I wish you, dear reader, hours of both entertaining and informative reading. Fabrizio Li Vigni, Barcelona 2009 - Paris 2013."

In conclusion I must agree that reading the biographies of living persons are entertaining and could in addition facilitate professional communications within the herpetological community. In case you were not targeted for being interviewed – don't despair, as the subtitle "Volume 1" designates that another volume is forthcoming.

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